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# Gleanings in Bee Culture

VOL. XXXIX

AUGUST 1, 1911

NO. 15

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## The Busy Bee.

LENA B. ELLINGWOOD

Oh! the sun is shining blithely,  
For the summer days are here;  
The leaves are at their greenest,  
'Tis the zenith of the year.  
The air is full of sweetness,  
You are glad to be alive;  
And the bees are on the clover,  
And the honey's in the hive.

From early morn till sunset  
There's a whirr of little wings;  
There's a humming and a buzzing,  
And a horde of busy things  
Attacks the clover blossoms  
And of all their sweets deprive,  
For the bees are working madly,  
Storing honey in the hive.

'Tis the world's vacation season;  
People seek for change and rest;  
But the honey-bees are tireless  
In their keen, persistent quest.  
They rush from flower to flower,  
With might and main they strive—  
Busy bees that gather honey  
For the storing of the hive.

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R. W. BOYDEN, Mgr.

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VOL. XXXIX

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## Editorial

### THE DESTRUCTION OF BEES BY SPRAYING.

WE have at various times published statements showing how the spraying of fruit-trees killed bees. The following short letter is another case in point:

Bees are doing finely down in this country, but spraying of fruit is playing thunder with some bees in spraying localities.

Athens, Ohio, July 14.

C. S. NEWSON.

### "LET'S BE INTELLIGENTLY HONEST."

WE would call special attention to an excellent article by Wesley Foster on page 456 of this issue, entitled "Let's be Intelligently Honest." The whole article merits the careful reading of all of our subscribers—certainly all of our comb-honey producers. To practice the suggestions of Mr. Foster would, we feel sure, put hundreds of dollars in the pockets of many who have about come to the conclusion that "bees do not pay."

THE Bureau of Entomology, Washington, D. C., has received announcements of the Fifth International Congress of Apiculture, to be held in Turin, Italy, September 10—12. A preliminary program of this Congress gives directions to those who may desire to become members, even though they may not expect to attend. Copies can be obtained, as we understand it, in French, by addressing the editor of *L'Apicoltore Moderno*, rue Cibrario 37, Turin, Italy. This exposition will probably be the most extensive one of the kind ever held, and nothing will be left undone by the managers to make of it a great success.

### WORDS OF SYMPATHY TO MRS. HUTCHINSON.

THE following letter will explain itself:

Mr. Ernest R. Root:—Will you kindly, through your columns, thank the many dear and true friends of W. Z. Hutchinson, who have written to me, offering their sympathy? I should like to write to each one personally; but it is simply impossible; and I also thank GLEANINGS for the grand tribute paid my noble husband, and I thank each writer; and could dear Will see all that has been written I know that tears of joy and love would flow down his cheeks. Hoping and believing he will meet them all again, I am

Sincerely yours,

Flint, Mich., July 17. MRS. W. Z. HUTCHINSON.

We feel sure that these words of sympathy

in the hour of bereavement have been a great help and inspiration to Mrs. Hutchinson.

### EIGHT VERSUS TEN FRAME HIVES.

STRONG arguments along the line of the proof of the pudding are now being advanced in favor of ten-frame hives rather than eight-frame ones. Notice what J. E. Crane says on page 451 of this issue. His experience is only that of hundreds of others; and in this connection do not forget that Mr. Doolittle has said that an eight-frame hive will swarm sooner than a ten-frame one. If a colony can be held back from swarming until they get nicely at work in the supers, the chances are they will not swarm at all.

### HOW TO FIND BLACK QUEENS; ELIMINATING DISEASE BY A CHANGE OF STOCK.

THE article by Mr. G. M. Doolittle, in his regular department in this issue, is particularly seasonable. Those who are fighting foul brood, either European or American, especially the latter, are learning they ought to get rid of their black bees and their crosses, and substitute pure Italians. We have learned that the queen-breeders are doing a rushing business these days. This we attribute to a demand for a stock that will resist disease better.

Mr. Doolittle's instructions on how to find black queens are particularly good. We notice, however, he says nothing about the use of perforated zinc. Several of our correspondents have found that they can shake black bees in front of an entrance-guard, and, after the bees are all in, find the queen on the outside. Mr. J. E. Crane, in this issue, page 451, calls attention to the possibilities along this line.

### A MISSTATEMENT CORRECTED.

ON page 330 of our issue for June 1, one of our correspondents, Mr. Leslie Burr, in a general article on the origin of foul brood had this to say:

While at the home of a prominent bee-keeper, I met two of the State inspectors. In the course of our conversation they stated that, a short time before, they had visited a well-known queen-breeder in whose apiaries foul brood existed. He was then

advertising queens for sale in the principal bee-journals, and continued to do so during the rest of the season.

Through some inadvertence on the part of the editors the item above slipped into our columns without having been *first* referred to the New York State Inspectors, for we do not intend that any item of this kind shall find a place in these pages without giving the party to whom they refer the courtesy of a reply.

We have heard from a couple of the New York bee-keepers, objecting to the statement, and Mr. Charles Stewart, one of the State inspectors, writes as follows:

In a recent article in GLEANINGS a writer stated that a certain queen-breeder who had European foul brood had been sending out queens. In justice to the queen-breeders of this State I wish to say that we have fully investigated this statement, at a considerable cost to the Agricultural Department, and find that a certain small breeder did have disease in his apiary, but did not send out queens during that time. The inspector of that division finds no disease in that yard at the present time.

CHARLES STEWART,

New York State Bee Inspector, Third Division.  
Johnstown, N. Y., July 8.

We believe this version of the matter is correct. Mr. Burr, with the best of intentions, must have misunderstood his informants. From a casual conversation such as Mr. Burr reports, one could have very easily gathered a wrong impression. We do not believe that any person, much less a public official, would knowingly say he had been derelict in his duties if he honestly believed he was innocent.

#### EVERY ONE HIS OWN FOUL-BROOD INSPECTOR.

UNFORTUNATELY many bee-keepers have the idea that, when they once get a foul-brood law and one or more foul-brood inspectors, their responsibility is at an end. If foul brood develops in their yard they at once lay the blame all on the inspector. The fact is, it will take a hundred men to cover all sections of a State where foul brood has obtained much if any headway. The most that any inspector can do is to visit the district once a year where foul brood is *reported* to exist. Usually no State has more than \$2500 appropriation to carry on the work of inspection, and most States have a great deal less. It transpires, therefore, that most States can not afford to have more than one or two men in the field; and if they visit the worst spots once a year by request, they will be doing all they possibly can do.

Foul brood, both European and American, has gotten an awful start, and it is going to need the combined efforts of bee-keepers and inspectors to hold the disease in check. This simply means that every bee-keeper should go over his own hives carefully; and if he finds disease, apply treatment without waiting for the inspector, who may have on his calendar a hundred other calls just as urgent as his. Every intelligent bee-keeper ought to be his own foul-brood inspector. When, however, he finds that one of his neighbors is negligent and careless, or one who will

not administer treatment, then it is time to call in an inspector. It is at just such times when we need police authority. See what Mr. J. L. Byer says on this subject on page 453 of this issue.

#### THE CASE OF DR. HARVEY W. WILEY, THE ADVOCATE OF HONESTY IN THE PREPARATION OF FOOD STUFFS, AND THE FRIEND OF THE PEOPLE.

OUR readers are familiar, of course, with the attempts that have been made lately to oust Dr. Wiley from the position of Chief Chemist of the United States—attempts that may yet prove successful unless the people rise up and demand his retention in a position he has filled so well. Dr. Wiley has been the most persistent foe of misbranded and adulterated foods that this country has ever known. He has, first and last and all the time, been the consistent champion of pure food.

It is due to him more than to any other man in the country that the national pure-food law was enacted in 1906. During the time that this bill was before Congress, the doctor experienced all kinds of opposition, and from that day to this it appears that the "interests" that have been making millions on adulterated and misbranded foods have been trying to discredit him. Since the National law was enacted a good many States have passed pure-food laws to conform to the national measure.

After the law went into effect, Dr. Wiley and his associates on whom devolved the duty of interpreting the law, sought to compel every manufacturer who had been putting out adulterated or cheapened food products either to quit adulterating or state the exact amount of adulterants on the label of the packages. The general effect of this policy has been to drive adulteration out of the country; for no one knowingly will buy poisons or adulterations; but in the mean time the big corporations, whose interests have been affected, have been after Dr. Wiley. He has incurred the displeasure of the blended-whisky people because he insisted that all whiskies must be properly labeled. He ruled that all preservatives in food products, of an injurious character, would have to be eliminated. In doing this he incurred the violent opposition of the manufacturers of catsups, meats, jellies, and jams, especially that class who have been using benzoate of soda;\* but in this he was partly overruled by his superiors.

Again, if we are correct, he insisted that all glucosed products should be labeled "glucose" and not "corn syrup." The public has known that glucose is a cheap syrup of low sweetening power, and of doubtful food

\* It was proven in the testimony that a very small amount of benzoate of soda would enable manufacturers to use partly decayed fruits, especially tomatoes, for making catsup. It was also proven that sound fruit, such as our mothers use, need no poisonous preservative. Even granting that benzoate of soda is not injurious of itself, if its use permits of the use of spoiled fruit it should not be permitted.



value; but it did not know that "corn syrup" was glucose under another name. But in this decision he was overruled again. Very recently he decided that saccharine, a preparation from coal tar from which many poisons are made, should not be used in any preparation of food, and the ruling to that effect was sent out from the United States Department of Agriculture; and again his ruling has been held up, so to speak, but not permanently, we hope.

Our readers are doubtless familiar with the trumped-up charge that has been preferred against Dr. Wiley, that he hired an expert contrary to law—a charge that, on the face of it, is silly and ridiculous. If error he made, it was one in judgment and not one of the heart. Even at most the charge can be no more than a technical violation of the law. Dr. Wiley's whole career from first to last has shown that, if he had any dishonesty in his make-up, he would have long ago sold out to these selfish interests. The fact that the whole pack of them are trying to discredit and disgrace him is not a little to his credit. It is a wonder that they have not been able to find some little thing against him before this. It would appear from the papers that his superiors, perhaps, had better have left him alone; for people who live in glass houses should not throw stones. At this stage of proceedings we are not inclined to take a snap judgment; but if Secretary Wilson and Attorney-General Wickersham have been doing any thing that is contrary to the public policy, the facts should be known.

At the present time it does not look very much as if Dr. Wiley would be ousted; for the press of the country is almost unitedly for him. He is too strong in the hearts of the people, and he knows it. We admired the spirit of the old warrior, when some newspaper men came to him and asked him how soon he was going to resign. Said he, "You fellows will wait around here a long time before I resign." Dr. Wiley is a fighter and not a quitter. It is just such men that we want to stand between us and those who would rob us of our health and lives.

It is gratifying to us to know that the manufacturers of honest and pure foods have everywhere been sending in strong protests to Washington, demanding the retention of Dr. Harvey W. Wiley. The Heinz people, who won't use benzoate of soda, have been among his strongest supporters. We ourselves sent telegrams to our Congressmen and Senators in Washington, urging them to use their influence against having Wiley dismissed. We also sent a telegram to President Taft, saying that we did not believe that his sense of fair play would allow the dismissal of Wiley. We respectfully suggest that every bee-keeper who believes in pure honey, and who believes in retaining the man who has done more to wipe out glucosed or adulterated honey from the market than any other man during this century, do likewise. Your influence is needed right now; for you may rest assured that the self-

ish interests of the country—interests that do not care any thing about the lives of our children and innocent babes, nor, in fact, the stomach of the whole American nation—will leave no stone unturned to disgrace him.

Dr. Wiley has been one of the most useful public servants who have ever been in Washington; and the fact that he has stirred up a hornet's nest of enemies is not at all surprising. It is greatly to his credit, for we love him for the enemies he has made. Bee-keepers especially have reason to be grateful to him. See page 479.

#### THE BEE-KEEPERS' REVIEW UNDER THE NEW MANAGEMENT.

MOST of our readers know by this time that Mr. E. B. Tyrrell, of Detroit, Michigan, secretary of the National Bee-keepers' Association, is now editor and proprietor of the *Bee-keepers' Review*. During the transfer from the old to the new management it was necessary to skip one issue and get out a double number. This number (now issued from Detroit) is fully in keeping with the former high standard of the *Review* in every way, and Mr. Tyrrell is to be congratulated on keeping up the pace that Mr. Hutchinson set. Some say that the new *Review* is even an improvement over the old. Mr. Tyrrell is a young bee-man with an abundance of enthusiasm and a love for the pursuit; and as he was a close follower and ardent admirer of Mr. Hutchinson, we have every reason to believe that the new *Review* will continue to be the strong paper that it always has been.

#### HONEY-CROP CONDITIONS.

ALL the evidence that has come in to our office so far goes to show that the crop of white-clover honey is going to be light. There seem to be only a few favored sections where it has been produced. Basswood promised well; and while it helped materially to increase the amount of white honey in the clover districts, it did not quite come up to expectations.

Latest advices show that California will have a fair crop of honey after all; but the shortness of the Eastern honey crop will have a tendency to stiffen prices. Reports are coming in almost every day, showing that the drouth in the early spring is responsible for a great deal of the shortage of Eastern honey. The following letter from one of the large producers is a fair sample of what we are getting:

The honey crop this year is next to a total failure. We have 310 colonies of bees, and they were in very good condition from early spring on. The total honey crop this year is about 3000 lbs., and the brood-chambers empty at that. In 1908 our honey crop was 26,000 lbs.; in 1909 it was 16,000 lbs., and in 1910 it was 14,000 lbs., and the brood-chambers full of honey. The cause of this year's failure was due to the drouth and early hot weather in May, and all through June. Basswood looked fine, and opened up well, but was all dried up in three days. We had our first rain yesterday since June 7, which was of any benefit to vegetation.

Forest Junction, Wis., July 24.

J. F. OTTO.

# Stray Straws

DR. C. C. MILLER, Marengo, Ill.

IN SWITZERLAND prices for pedigreed stock are pretty well up. For 1911 the Breeders' Conference has fixed the following prices: For a laying queen, \$2.00; for a virgin, 80 cents; for a queen-cell, 40 cents.—*Schweiz. Bztg.*, 185.

R. LA CENSE keeps the queen out of the extracting-super with an excluder. Thin boards prevent all passage from brood-chamber to super, except a passage of about 1½ inches at one side; and if the first two or three frames at this side of the super be not empty, the queen will not be induced to go up.—*Leipz. Bztg.*, 95.

DR. WILEY, U. S. Chemist, says: "Both as a means of prevention of disease and as a remedy for disease, alcohol is rapidly falling into disrepute, and bids fair to become a mere memory in the *materia medica* and in the pharmacopoeia." [Dr. Wiley, most of the time, seems to be ahead of the times. See editorial comments elsewhere concerning this remarkable man.—Ed.]

G. C. GREINER, are you not overworking just a little that argument, p. 434, that gluing shows that bees do not require upward ventilation? You say, "I have never known bees to gnaw the crevices of wood at the top of the hive. Invariably they will glue them tight if the opening is less than a bee-space." Did you never know them to apply glue at the entrance? As to gnawing at the top, you are likely a very careful man, and never allow a crack at the top large enough. I've had more than one hive spoiled by having holes gnawed at the top.

PROPOLIS as the base of an important antiseptic preparation for the use of surgeons was mentioned in this department a few years ago; but if it has ever come into general use in this country the bee-journals have not mentioned it. A two-page article, *Illustrierte Monatsblätter*, page 54, makes one believe it deserves more attention than it has received. In a hospital where there were many bomb-shell wounds, many amputations were necessary, generally with fatal results. Then a bottle of propolis-invasogen was obtained, and the change was magical. In all, 58 cases were treated—not one single failure. When the bottle was exhausted there was a return of the former unfavorable results. The medicine is highly commended as a domestic remedy for wounds of all kinds, burns, etc. Physicians can obtain propolis-invasogen from Pearson & Co., Hamburg.

THE CHIEF REASON why I preferred double-tier cases was because the larger proportion of glass surface made such a beautiful pile, and so helped the sale. If, now, we are to have uniform cases, I protest most earnestly against glass so narrow as two inches. The three-inch glass adds nearly sixty per cent to the surface of honey expos-

ed to sight—a matter of so much importance that it should not be lost for the sake of a little more strength. With three-inch glass the case is strong enough. It is not a sufficient argument that a case with two-inch glass is stronger. A case with a cover one inch thick is stronger than one with a cover ¼ inch thick; but you wouldn't on that account favor the thicker cover. You would say ¼ inch is strong enough. If a few are so rough in handling cases that they need two-inch glass, let them have it as a specialty, or, still better, an all-wood front; but please let the rest of us have the benefit of three-inch glass as the standard. [This question of two or three inch glass is a proper one for discussion. Manufacturers, of course, do not care what width of glass is used; but it is important to have the case made as strong as possible consistent with lightness. We do not quite agree with the doctor that more comb honey should show. The main purpose of the glass is to show to the freight-handlers and the truckmen the fragile contents of the package. The two-inch glass will serve the purpose as well as the three-inch; and, besides, it will permit of wider wooden cleats and the use of four more nails.]

The reader is asked to express his opinion, whether he is a comb-honey buyer or a comb-honey producer. Let us have the truth.—Ed.]

A. I. ROOT, speaking of Sears, Roebuck & Co., and other mail-order houses, p. 413, says, "I do not know whether the heads of these great firms are professing Christians." Julius Rosenwald, president of Sears, Roebuck & Co., is not a Christian; he is a Jew. He is the man who, a few weeks ago, gave \$50,000 toward a building for a Young Men's Christian Association for negroes, and that's not his only philanthropy. Don't you think a few more Jews of that kind would be a good thing? [Yes, dear old friend, I do think a few more Jews of that kind would be a good thing; and any man who contributes toward the Y. M. C. A., whether for negroes or white people, is certainly engaged in Christian work. May God be praised for what you tell us. In connection with the above, perhaps it may be well for me to say that, partly because our two boys, Ernest and Huber, are so intimately connected with the Y. M. C. A. work, I have of late been giving \$100 a year to the Y. M. C. A. organization of Medina Co., and \$50.00 a year to the State organization. I protested, somewhat, at first, and thought it was a little more than my share for this special line of Christian work; but both boys declare that the "investment" is paying a good round dividend, by drawing our boys from the saloons, and getting them under the influence of every thing that is good and pure and holy.—A. I. R.]



# SIFTINGS

J. E. CRANE, Middlebury, Vt.

European foul brood seems much more prevalent in Western Vermont than had been dreamed of. I have found it within two miles of one of my yards.



You tell us, Dr. Miller, that the term honey butter has been used to mean butter with an ounce or more of honey worked into a pound of butter, page 354. The reason you give for so doing is that it makes the honey taste better. May be; but isn't it a rather expensive way to improve the taste of an ounce of honey to add a pound of butter to it?



## PERFORATED ZINC FOR FINDING QUEEN.

Some time in the winter I read in GLEANINGS of a basket or box made of perforated zinc, to shake bees into for catching or finding queens. Well, I made one with legs to hold the basket a little above the ground, and it is a great success. I wouldn't take ten dollars for it if I couldn't make another. How easy to shake a swarm into a basket and let the bees through and find the queen!



## PROTECTION FROM STINGS.

Mr. Louis Scholl tells us, page 294, May 15, of the value of a good armor. I have for many years used very little protection, but find with some protection on I can do as much work and handle bees to better advantage. Somehow bees, when they can not sting about the face, seem to give it up; or, because there is less odor of poison in the air, are less inclined to sting at all.



## THE HONEY CROP LIGHT IN VERMONT, AFTER ALL.

The honey crop in Vermont is likely to be light. Clover is scarce. There was an unusually large amount on the ground last fall, and it was covered by snow most of the winter; but when the snow went off it seemed to go like dew before the sun. What killed it I am at a loss to know. Still, there is some alike and a little white in places, and we hope to get some.



## MICE; HOW TO CONVERT THEM INTO FRIENDS OF THE BEE-KEEPER.

Wesley Foster tells us on page 357 of the fondness of mice for the thorax of bees, and the value of bees as bait for catching mice. I have noticed this fondness of the mice for this kind of diet; but, instead of using the bees to catch the mice, I used the mice to help the bees. Almost every winter we lose more or less bees in cold weather, and find in such hives some combs filled with dead bees. If such combs are placed in strong

colonies during warm weather the bees will, after a time, clean out the dead bees; but it is a lot of work for them, and I have many times placed such combs where the mice could get on all sides of them, when they soon learn to pull out the dead bees for the choice morsel of the thorax. The mice are not apt to gnaw the combs if they can get on all sides of them.



## ONE OBJECTION TO A HOT UNCAPPING-KNIFE.

O. B. Metcalfe, on page 274, May 1, gives the best of reasons for using a hot uncapping-knife; but there is one objection to the hot uncapping-knife I have not seen mentioned, which is that the hot knife, as it passes over the comb, leaves a very thin film of wax where the cappings were, which, of course, does not interfere with extracting, but breaks up and goes through the finest sieve we can strain the honey through. After treating the honey to a temperature of, say, 150°, it rises to the top and so we get rid of it. Still, it has annoyed us.



## EIGHT VS. TEN FRAME HIVES.

I was especially interested in the editorial, page 261, May 1, on eight and ten frame hives, for the conclusions are doubtless true. It was a puzzle to me for a long time how my neighbor, who gave her bees little care, could get as much or more per hive than I did, with half the feeding in the fall for winter, and at last came to the conclusion that it was owing to her using ten frames, while I used only eight. I hate to admit it, but it is true, it is not nearly so much trouble to control swarming in such hives, or rather, perhaps, I should say, swarming does not begin so soon, nor are they so persistent. A swarm in a small hive is like a machine with a small balance-wheel. It has a jerky motion, while one with a heavy balance-wheel runs more steadily. One can get up speed quicker with a light wheel; but before he knows it, it is going too fast. Just so with the bees. A swarm of a given size will enter boxes sooner in the eight-frame hive; but before they have accomplished much they are most likely preparing to swarm, and often before any surplus is stored. Again, such hives require much more feeding than those of ten frames. Two combs solid with honey make a pretty good asset, either in fall or spring. A seven or eight frame hive is better for wintering, especially out of doors, than a ten-frame; but it is not difficult to reduce with a close-fitting division-board. Only yesterday in looking over a yard of bees I could not help noting that my most forward colonies were on ten frames. [That is just precisely what we have noticed at our yards.—ED.]

# Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

The paragraph entitled "Smoke at the entrance," page 388, July 1, fifth line, should have read "a pound of honey" instead of "a pound of bees."



Colorado is a land of paradoxes—84 degrees in the shade here May 10, and on the 11th three inches of snow at Silver Lake, only about fifteen miles straight west of here by air-line. We had a freeze here, too, which nipped our corn and killed most of our tomatoes. Colorado has not the mellowness of a spring in the Eastern and Middle States, as the air is dry, and the sun always shines with a hot dry glare. The skies are such a deep, deep blue, that looking upward seems like peering into a well.

One can seldom find violets and ferns except in the dark shaded ravines and cañons; and in one of these ravines I found the bees working on the violets. That is the first time I ever saw bees on them. The bees located close to the foothills have a chance at the profuse bloom of the wild cherries, plums, and wild flowers that run riot in the ravines, clog the cañon depths along the streams, and cover the mesas with their color and perfume in the spring. Many a wild bee is seen among the bloom too. Fifty of our colonies are now located here near the foothills; and when alfalfa blooms they will be moved several miles east for a chance at this prince of honey-yielders. This is the extent of our migratory bee-keeping this year.



## THE LAYING OF THE QUEENS.

Since May 1 I have been watching the work of my queens pretty carefully, and have got hold of a few things that come pretty near being facts. The queens on May 1 had, on the average, about 7000 cells of eggs and brood in various stages of development, which, if in one frame of solid worker comb, with no pop-holes, would fill this frame clear to the wood on all four sides. This brood was in from three to five frames. By June 1 the queens had their hives full of brood and eggs. I have found that a good queen will rarely get over five frames of brood in an eight-frame hive; that is what would make five solid frames of brood filled to the edges. This amount of brood would be in seven or eight combs, as I get the queens laying in nearly every frame by spreading the sealed brood. As nearly as I can come at it I should say that my queens laid on the average 40,000 eggs from the 15th of May to the 15th of June. I should think at least ten per cent never hatched out of the egg, either on account of being unfertile or chilled by cool weather. Another ten per cent, perhaps fifteen per cent, was lost between the egg and the hatching of the bees. About 30,000 workers on the average is what I get in new workers from a month of laying, in the breeding season. For this loca-

tion, where the bees do not build up as rapidly as in the East and a good many other places, I think two months will be needed before a hive will be strong enough to swarm. I know there are colonies that will come through the winter almost strong enough to swarm; but the average will be on four and five frames. Our bees were more often found on two and three frames this spring than on even four and five.

If a queen will be able to lay 80,000 eggs from May 1 to July 1, and have 60,000 of them hatch into bees, in all probability she will maintain throughout the honey-flow a little over 50,000 workers, which I consider a good swarm of bees fit for storing surplus. The mortality among bees is very heavy, and from watching the brood-nests I am confident the heaviest loss is in the egg, larval, and pupa stages. Changes in temperature and moisture affect the early stages of bee development very much, for we find our bees having very definite ideas about drafts and moisture in the hive. The bee has for thousands of generations sought propolis to seal up holes with, and has sought the trees to avoid dampness, principally, I think. The most primitive bees still have their burrows in the ground, and doubtless the mortality is very high among them.



## FAIRS AND EXPOSITIONS.

We have had so much talk about advertising honey and disposing of the crop that it is very apparent there is a serious problem before the bee-keepers for solution. Colorado bee-men are fortunate in having the Colorado State Fair management willing to devote money and space in order to get up a creditable display. The prizes are generous, and a good many will win enough prize money to pay them for the expense of making an exhibit. This is good advertising, and it is cheap. It's within the reach of every careful honey-producer to make an exhibit, help advertise honey, and, no doubt, win some prize money.

The State Fair management write me that they have contracted with Mr. Frank G. Odell, "the bee-wizard," as the papers call him, of Lincoln, Nebraska, to do some bee demonstrating and lecturing on the grounds at the fair. Mr. Odell is secretary of the Nebraska Bee-keepers' Association, and is an entertaining speaker who mixes the lore of the bee in with some wonderful stunts in a way that is very interesting to the people as a whole.

The Inter-State fair held in Denver each year also makes a fair allowance for the apary department; and it is possible to get from one fair to the other, and so exhibit in both. Now is the time to get the honey ready. If one gets the fair habit, I rather think it will stay by him, and there are worse habits than the one of exhibiting at fairs.





# NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

British Columbia has the strictest foul-brood act yet enacted, in that it gives power to hold in quarantine any bees being shipped in, even if coming from the sister Provinces. It seems to the writer that this is reasonable; and why should it not apply to *honey* being shipped in from infested localities?



Fruit is scarce in our Province this year, and already the demand for honey is the greatest I ever knew. Certainly those who have honey to sell need not go begging for a market this season, and I note that sales already made have been at a good figure. All heat records have been broken here during the past ten days, and this condition largely explains the scarcity of fruits, as many varieties were literally cooked on the bushes. A temperature of 105 in the shade may be all right for Texas vegetation, but we Canucks prefer things a little cooler; and this July, so far, has been a revelation to us.



That picture of Mr. Hutchinson and the children on page 395 has always been a pleasure to me to look at; and I am proud to say that, shortly after the original was taken, friend Hutchinson sent me a nicely finished copy of the same. To say that we value it highly is expressing our sentiments very mildly, and many competent judges who have seen the picture at our home tell me it is the best example of the photographic art they have ever seen. Needless to say that, since friend H.'s untimely decease, the picture has been valued more than ever, and will long be cherished as a memento of one of the kindest men who ever lived.



In our immediate district the crop of honey is almost a failure; and as farmers say that the clover seeded this spring is all killed, things look none too good for next season. While all around us rains have fallen, here with us we have had no rain (except a few sprinkles) for over a month, and at this date, July 11, things are parched badly. At two of the yards no buckwheat has been sown, as it was no use putting it in, so that means feeding for winter stores at those places. Western and Eastern Ontario have fair crops, at least in some places; and as we happen to have an apiary in Eastern Ontario this year that is giving us a crop, we can, as usual, say, "It might have been worse."



Editor Hurley, of the *Canadian Bee Journal*, calls attention to the fact that there are openings for some good queen-breeders here in Ontario, and says that, since Mr. Adams went out of the business,

many inquiries have come relative to the matter of getting queens in Ontario. Mr. Hurley is right in the matter, and with him I would say that there "is a great opportunity in Canada for some enterprising bee-keeper to go into queen-rearing on a large scale." The "made in Canada" slogan is quite popular at the present, and there is not the slightest doubt that the right man could sell thousands of queens right here in Ontario and the other Provinces, and his chances would be equally good for disposing of his product over the line.



During the past few weeks I have had the pleasure of meeting no less than four of the foul-brood inspectors, and all report lots of work to do. One of the discouraging features of the work is that many will not take the trouble to familiarize themselves with the disease so as to be able to head it off when it first gets into their apiaries. Personally I am not in the work now, so I can speak freely, and for some time I have taken the ground that all who contemplate keeping bees must ultimately learn to be their own inspector. It is simply impossible to visit all apiaries every spring, and five minutes to each colony every year would easily tell the owners if any very serious trouble is in evidence. Yet many will not look into a brood-nest from year to year, and the first thing they know their bees may have contracted foul brood badly; whereas a look over the combs a few months earlier might have saved a lot of trouble. Last summer I was sent to a certain bee-keeper, and on examination I found all the bees rotten with American foul brood. I learned that, a few years ago, they had been in the same condition, and had all been treated. The trouble had not been entirely eradicated, and had gradually got so that the latter condition was worse than the former. The owner seemed to know the disease all right; and when I questioned him as to why the yard was in such a condition, and asked why he had not examined them himself, he replied, "Why, that is what you fellows are for; why didn't you come along and tend to your work?" I suppose the man never thought that such a thing as examining every apiary in the Province each spring was an impossibility; yet his attitude was the same as that of many other men on this question. Let me say most emphatically that it is imperative that every man intending to keep bees shall learn to know foul brood at sight. While there may be liability of making mistakes in diagnosing European foul brood, there is not the slightest excuse for not being able to know American foul brood, as there are certain characteristics of this disease that will enable any intelligent person to know the malady at first sight.



# Conversations with Doolittle

At Borodino, New York

## FINDING BLACK OR HYBRID QUEENS, ETC.

"I have no trouble in finding yellow Italian queens; but with a colony of hybrids having an almost black queen, or with blacks that will stampede on the least provocation, I confess I lose all patience."

"Finding black or very dark-colored hybrid queens often baffles an expert, to say nothing of a beginner. Much care in opening the hive is the great secret of success, and here is where I think you probably failed. Then if you choose the hours between 10 A. M. and 2 P. M., when the bees are at work and flying freely, you will find in this another valuable secret. I know of many beginners who have thought that a cool day, when the bees are somewhat sluggish, is the time to do all work with the bees. There never was a greater mistake than this. Choose the time when the largest number of field bees and sporting young bees are out of the hive, and the chances will be much better. At such times the hive is not congested with bees as it is on a cool cloudy day, or early in the morning or late in the afternoon."

"Therefore, choose a time when the day is warm, the sun shining brightly, and the bees flying freely. Open the hive slowly without jar, and use as little smoke as possible, allowing what you do use to float slowly over the tops of the combs. Then be very careful not to kill a single bee; for if bees are killed they throw off a scent of poison which is very apt to arouse the ire of the whole colony. From this we would be obliged to use so much smoke in quieting them that the whole mass would likely be stampeded, under which condition it is nearly impossible to find the queen of any race. Having the hive opened, sit down by it with your back to the sun, so that the sunlight will strike the side of the comb nearest you. Now remove the comb next to the side of the hive; examine it quickly; and if you do not see the queen, set it in an empty hive brought for the purpose, placing it on the side furthest from you. On removing the second comb from the hive, glance down upon the side of the comb in the hive which was next to the one just raised before you look at the one you have in your hands. If the queen is on that side of the comb, when the strong sunlight strikes her she will immediately commence to run around the comb to get out of the light. If you do not see her at once (which you will be apt to do if she is there, as the strong light striking her as she is running makes her very prominent), then look on the side of the comb you hold in your hands that is furthest from you, as the queen is sure to be on one of the dark sides of the combs. If she is not there, set this comb in the other hive, close to the one that you put in first. Proceed in this way till all the frames are taken out, unless you find the queen sooner."

"If not found, look at the corners or elsewhere about the hive wherever you see little clusters of bees; for if the queen is very shy, or you have used too much smoke, or jarred the hive somewhat, she may leave the combs and run down into the corners or elsewhere about the hive. If you still do not find the queen, proceed to put the combs back in the same order you took them before, glancing them over in the same way; and in nineteen cases out of twenty you should find any queen before the combs are all back, as they were at the start, even if the colony is composed of pure black bees and you are only a novice."

"As I said at the beginning, taking care at the start, so as not to stampede the bees, and having as few bees in the hive as possible when you hunt, is the great secret of success. These, together with a strong light and a knowledge of how any queen will act under certain conditions, give you the key to the whole matter."

"Will it pay me to plant different things for the bees to forage upon?"

"Unless the desired flora cover the hundreds of acres owned all about the apiary by others you can not meet with the success you otherwise would; for planting and sowing for honey where nature does not provide natural forage in profusion can not make up for what is lacking. It may help somewhat, where the environments keep you in a place where nature does not furnish flowers in profusion."

"There is no subject of more importance to the bee-keeper, nor is there one that gives him more pleasure, than the study of the honey-producing flowers in his locality. No matter where they bloom, if bees gather nectar from them they at once become an object of interest. By having the desired flora in our location, and then so manipulating or working our colonies that the maximum number of bees come on the stage of action just at the time when the flora producing the maximum amount of nectar is in bloom, our success is assured."

"Where shall I put my comb honey when off the hive so it will keep best?"

"To keep comb honey perfectly, the temperature should never go below 70 degrees F. From 80 to 95 degrees is what should be aimed at during the day time; and the room in which it is kept should be dry and as airy as possible. A dark room keeps the color of the combs better. Keeping honey in a warm dry room makes it thicker, richer, and heavier. When thus kept, if there is honey in unsealed cells this honey will become so thick that it will not run out, even if the combs are turned down on their sides. If the room is damp, and the temperature falls lower than 60 degrees, the honey takes on moisture, becomes thin, and eventually sours. Therefore, always store honey in a warm dry room but never in the cellar."

# General Correspondence

## CAUCASIAN BEES AND THEIR CROSSES.

Some Experience Showing that they are Better Honey-gatherers than the Italians.

BY J. J. WILDER.

I am not a commercial queen-breeder, and never expect to be. Honey-production is my sole business, and I am not prejudiced nor partial to any race or strain of bees, but judge their qualities as I have found them. On the other hand, I am not contented with an inferior honey-bee. I have been breeding bees for years for superior stock, and have always been on the alert for something better, and I am frank to admit that I have not yet found that strain of bees that is "good enough for me." But, so far, the Caucasians and their crosses have come nearer this ideal than any other strain I have ever been able to obtain.

As there has been nothing said through the bee publications for a long time relative to Caucasians, no one can think that I write this article to vindicate this particular variety of bees. I now have the Caucasian bees and their crosses in 13 of my apiaries, or about 1000 colonies of them, having obtained several breeding-queens of this variety from the government. This foundation stock came late in the fall, so I was able to put but few colonies of this new variety into winter quarters that year. They showed some marks of superiority, and the next spring I requeened my home yard, which then had Italian bees, with queens from this foundation stock. The honey harvest at my home yard proved to be the best. The average yield was a few pounds more per colony than I had ever been able to obtain here before, and it was of a better quality, and brought two or three cents per pound more on the market. This made quite an item to the credit of these bees.

Before the next season I divided the bees in each colony in this apiary, and established an outyard with this increase, and did some requeening at two of my other yards, using queens of this variety. Some of them were mismated with Italian drones. At the same time, I had some of these mismated queens under test at my home yard. Their bees were not quite as gentle as the pure Caucasians, nor as cross as the Italians; but they did not propolize as did the pure Caucasian stock. As honey-gatherers, however, they were equal to the pure blood on either side that season, finishing their honey just as beautifully as did the pure Caucasian stock. At this time I felt somewhat encouraged over my effort for better stock.

The next season I increased again, and I requeened some of my black stock with purely mated Caucasian queens, and soon raised some queens of this variety, and had them mated among the black stock.

As soon as the spring honey-flow was over

I had no chance to test the bees of these queens, and did not return until after the flow from cotton was nearly over, when a great difference in the amount of surplus honey stored by these colonies (as well as the pure Caucasians over the blacks) was evident. At the time I put the bees away for winter I found these colonies heavy with stores, while many of the blacks were light, and had to be supplied for winter. This cross proved to be about equal to the pure Caucasian blood as honey-gatherers, and as gentle; and they finished their honey about the same, but did not propolize quite as badly, but more than did the cross with the Italians.

At that time I had Caucasian stock in eight apiaries, and had a good season. Since then I have increased the Caucasians and their crosses with Italians and blacks, in 13 apiaries. This season I gathered the best of these crosses, and crossed them again in my home yard; but I am not quite ready to report further on this.

### CAUCASIANS AS HONEY-GATHERERS.

As honey-gatherers these bees have so far proven themselves to be equal to our Italian stock. Two seasons they have given a better average. The second season I had them was one of our worst for an early spring harvest, owing to continued cool weather, rain, and high wind; but our Caucasian colonies held their own in strength better than the others, and at intervals, when the weather proved favorable, they showed greater activity. Here was where they made the gain over the others. After the spring flow they did no better than the Italians during the summer and fall flows. I never gave their gain much thought, as I had only a few colonies.

When I obtained the stock of Caucasian bees the government placed me under obligation to furnish other bee-keepers foundation of this variety, which I did. I supplied Mr. R. W. Herlong, of Fort White, Fla., a few queens, and he established a Caucasian apiary on benches or scaffolds, 24 or 30 inches high. Early in the summer, when the main honey-flow was expected, the weather was unsuitable for honey-gathering and it continued thus for some time; but the Caucasians seemed to be gaining greatly in numbers, and were lying out in large quantities. He added a large number of ready supers, and left the matter of watching for swarms to a farmer living near the apiary.

When the weather changed, the farmer notified him that the scaffolds were giving way under the bees, and that he ought to come at once to look after them, which he did. On outward examination he saw that not much damage had been done; but when he looked at the supers he discovered that they were about ready to be removed, and that the benches under the hives had broken under the great weight—a condition not true of his other apiaries.



He has not had another such experience; but this season was a very poor one with him, as well as all other bee-keepers in his section. But he states that again, under these very trying conditions, the Caucasians came out far ahead in the amount of surplus.

Since the second year I installed the Caucasians, they have kept pace with other prolific stock as honey-gatherers until this season. But even then, in spite of unfavorable weather, especially during the main honey-flow in early spring, the Caucasians and their crosses came to our rescue and gave us a greater surplus than our other stock.

There is another good trait concerning these bees which has not hitherto been brought out, which we will mention later, as it is a very vital one to the apiarist who wants to increase rapidly.

Cordele, Ga.

### LET'S BE INTELLIGENTLY HONEST!

#### One More Plea for the Production of More Uniformly Graded Comb Honey of Better Quality.

BY WESLEY FOSTER.

A bee-keeper and honey-dealer, whose experience and observation extend from one end of the country to the other, and from north to south, said that there was no one section of the country that could come up in quality and methods of production with the district within fifty miles of Denver. Here practically every bee-keeper operates for comb honey; and, being close to Denver, has attended the bee conventions regularly, where it has been dinned into his ears continually to scrape the top-bars, use few baits, use full separators, keep hives level, use top and bottom starters in sections, raise comb honey over new combs, if possible, and take off honey as soon as completely capped. Then the Colorado Bee-keepers' Association adopted stricter grading-rules than are in operation elsewhere; and the consequence is that the bee-keepers as a rule in this territory have got up a standard of goods that can hardly be excelled. The influence of example is strong among us all; and if we see a neighbor who is putting up a case of honey in such a way as to get fifty cents more than we do, it will not be long before we will be using the same methods.

You can go into the stores in Denver and find cases of comb honey where every comb is a perfect one; and the No. 2 comb honey will be found to be graded in the same even manner, every comb a fair representative of its grade in color, weight, and filling.

This honey is more than the result of careful and honest grading. It is the result of scientific methods of production, and of the closest and most painstaking care. These results are the direct effect of close association of bee-keepers and the study of market conditions. Take any part of the country and bring a number of bee-men together to

learn better methods, and they will eventually have the same results. So I think we are going forward; for, as we get together and learn the tricks that push up profits, we shall think more highly of frequent meetings of bee-folk. I think it would be a fine thing to get together for a "talkfest" about three times a year—once in the spring, to arouse enthusiasm for the coming season; once in the summer, to get out among some member's bees and talk over first-hand conditions, and then have the regular convention in the fall or early winter. I know "talk" counts, for the men who get around and give their ideas to others get valuable suggestions from almost every one they meet. The more ideas we give away the more we have left, any way.

#### WHAT INFLUENCES THE CANDYING OF WESTERN HONEY?

The Western comb honey has been spoken of as very much subject to candying. Now, you may think this stretched a little; but you can tell almost to a certainty whether comb honey will remain liquid all winter. It is hard to describe on paper; but the whitest and most transparently clear alfalfa comb honey will hardly granulate at all for over a year after coming from the hive. The comb honey that candies is that which is amber, slightly amber, and gathered from fall flowers. Some of this honey will granulate very soon, while that which is slightly amber will not begin granulating till after Christmas if kept in an evenly warm room. So this honey that we know will granulate soon should be sold the very earliest possible, and, if disposed of before Christmas, it will give satisfaction and its full value be secured.

One thing, the farmers and fruit-growers who raise the most perfect crops enjoy their work, and they are the ones who have nice homes, lovely children, and the right spirit to enjoy these things. These are the homes where we find pianos, and the children learning to play them; and the women have kitchens with modern conveniences, and the men have riding-plows, manure-spreaders, and dozens of other labor-lighteners.

And now, take it as a rule, I believe the bee-keepers have just as many of these conveniences as the farmers. Of course, a bee-keeper is a kind of farmer. You will find the majority of bee-men with nice homes, and many have pianos, modern fixtures in the houses, carriages to get about in, and a few have automobiles. I find the men who have these things for their families are those who are scientific bee-keepers, honest and careful graders and packers of their honey, and good business men. This last is important; for unless a man knows business methods he will not know enough of the market to produce an article that it wants. It seems that what we need, then, is a wideawake attitude and eagerness to lay hold of every good idea that will prove of value.

Here is a clipping I have found in the *Rural New-Yorker* relative to the fruit sit-



uation in the East and the West. It seems the Western fruit is taking the Eastern markets right out from under the noses of some of the Eastern fruit-men.

We have only to substitute honey for apples, and the whole argument will apply to the production, grading, packing, and sale of comb honey.

There is only one producing section which uses the box as a vehicle in the disposition of their fruit, and that is the Mountain and Pacific Coast country. The fruit in New York, Virginia, and New England is not packed in boxes, except in a very small way. The fact is, the growers in the East do not seem to feel inclined to take care of their orchards, nor to give their orchards that attention which the Western grower does, with the result that the fruit in the East is not of sufficiently good quality to be packed up in the boxes with any good results. As you probably are aware, there is about one bushel of good apples usually found in a barrel, the rest being mostly off grades; and as this off stuff is usually found in the middle of the barrel, it can not be seen by the buyer; whereas if the same stuff is packed in boxes, opening top, side, or bottom exposes the poor fruit, with the result that the apple-growers in the East prefer shipping in barrels rather than boxes.

The writer of this, it seems, thinks the Eastern apple-growers are not as honest as the Western growers. The rules of the Western Association force the grower to live up to the rules, and this makes him honest. Carelessness is but a form of dishonesty. So we are not so different after all, only we are working under different conditions. Let's change the conditions.

Boulder, Col.

[See editorial comments elsewhere.—ED.]

## THE LAW OF SWARMING FORMULATED.

BY WILLIAM BEUCUS.

What is swarming? Why does it occur? Is there a law which it obeys? These are questions which have long pressed and are still pressing for solution. Shall we find an answer by studying the bees themselves? or shall we find it by studying nature in general? That the first method is inadequate is proved by the fact that thousands of observers of the phenomenon of swarming, and the conditions under which it occurs, have failed to formulate the law. Let us see if the latter method, that of studying nature in general, may not help us.

We will contemplate the subject first from the viewpoint of the biologist. What are the activities of life? They may be grouped under two heads: First, those activities by means of which the individual is preserved; second, those activities by means of which the species is preserved—that is, the rearing of offspring. Of these activities the most important for us to consider are those by means of which food is secured. Force stored up in food and absorbed by the body tends to expend itself in those functions by which it was secured. We see this illustrated on every hand. Birds are busy during most of their waking hours procuring the force stored up in food, and again expending it to procure more food; and, when

food is abundant, in warm weather, procuring food above their own needs and utilizing it in the rearing of offspring. In human beings we see it among those who, having a competency, still busy themselves in performing the functions by which life, without the competency, is made possible. Cats and dogs, in rural districts at least, satisfy this impelling internal force by entering upon hunting-expeditions; and this, too, even when, by man, they are liberally supplied with food. Further evidence is furnished, too, by observation of those superfluous activities in which well-nourished kittens and puppies indulge—the pursuit and seizure of moving objects, and the biting and clawing, this being identical with those actions to be expended, at maturity, in the actual pursuit and seizure of prey. In children, too, this inherent tendency is shown—little girls, whose function it will be to care for offspring, duplicating the actions of mothers in the care of dolls; and little boys, whose function will be to earn for the family the means of subsistence, duplicating the actions of fathers and of primitive man, whose duty it was to provide food through hunting.

Without multiplying illustrations, it has, perhaps, become sufficiently clear that force absorbed in food tends to expend itself in carrying on those functions upon the performance of which the life of the individual and the life of the species depend.

What bearing has this truth upon the phenomenon of swarming? We shall quickly see. Bees, like other animate beings, are composed of structures; and bees, like other animate beings, live through the performance, by these structures, of their proper functions. Having been placed in the spring on summer stands, when pollen is abundant, when there is some nectar in the flowers, when there is honey and abundant room in the hive, and when, for the queen, there are numerous empty cells in which to lay, all of the conditions are supplied which make possible the full performance by each individual of its functions. The queen performs, unrestricted, her function of egg-laying; the young bees, if there are any at this time of year, perform the function of caring for the brood, and the fielders perform their function by means of which these activities are sustained. These activities proceed uninterruptedly until there is somewhere a restriction of function, and this restriction comes when the conditions external to the hive are most propitious, and when, therefore, the force-impelling function is most powerful. The weather is warm, and nectar in the fields is becoming abundant. But now the queen is restricted in her function of egg-laying, the combs being nearly full of brood; the fielders are restricted in their function of gathering and storing honey, being encroached upon by the queen, and, in turn, encroaching upon her. Young bees, too, are emerging by hundreds each day, thus interfering with that freedom of movement required for the performance of

any function whatever. And to these must be added the more and more restricted function of the increasing number of young bees whose duty it is to care for the larvæ which now are born in decreasing numbers. And here, in passing, let me call particular attention to the truth that swarming is incited by congestion of *emerged* bees. It is most forcibly illustrated in the Aspinwall hive, in which, by means of slatted dummies and additional end-bars, abundant room is provided for the increase of numbers, thus relieving obstructed movement and facilitating function.

But while, by this congestion of brood, bees, honey, and pollen, the functions of all are restricted, the force which sustains and impels these functions remains unrestricted. What must occur? The conditions in the hive interfering, as they do, with the vital activities of bee life, some other habitat must be sought where the hampering limitations are absent; hence the act of swarming.

That this is the correct solution may be quickly shown by considering some of the evidence which is continually appearing in the bee-journals. In a late issue of GLEANINGS the editor states that the ten-frame hive is becoming more popular, the eight-frame hive having proved too small. Mr. G. M. Doolittle states that swarming from the ten-frame hive is delayed a week longer than in the eight-frame hive; and all know that, before cells are commenced, the removal of frames of brood which are replaced by empty combs delays swarming considerably, and that giving full-depth bodies full of combs over excluders often prevents swarming during the entire season; while, if the queen-excluder is omitted, swarming seldom occurs. Furthermore, the control of swarming is secured by forcing it in what is called shook swarming—even Mr. Doolittle, after sixteen years of study, having been forced to the expediency of giving to the queen a full set of cleaned combs (one comb containing eggs and brood to establish the brood-nest), and to the workers a superful of drawn combs in which to store honey immediately, and over this a superful of sections containing full sheets, supplying room for the future. And let me say here that, to me, his plan seems superior to any which have, up to this time, been promulgated; for it supplies all of the conditions which enable all of the bees to perform all of their respective functions. To this, some of the more critical readers will ask, "What about the young bees with only a patch of brood to care for?" To this I reply, the combs upon which the bees were shaken contain a considerable quantity of honey which must be removed to make room for the queen, which, it will be remembered, is not in the condition of a queen with a natural swarm, but is laying to her full capacity. Removal of this honey, and care for the nectar, therefore, give ample scope for the first three or four days for the performance of proper bee-functions, at the end of

which time from 2000 to 3000 eggs have hatched, requiring immediate care.

We may now deal with the subject from the standpoint of the physicist—a position, many will think, from which little that is practical can be seen. We shall find, however, that this is not so.

All changes take place according to natural law; but changes are motions. There are no such things as changes without motions, and no such things as motions without changes. The law of change is, therefore, the law of motion; and in studying the laws of changes which are occurring in a hive we are, though it may be unconsciously, studying the laws of motion. What are these laws? The first, as given by Newton, is as follows: Every body continues in its state of rest or of uniform motion in a straight line except in so far as it is compelled, by force, to change that state.

A colony of bees in the cellar is in a state of rest, and it remains in that state as long as the light is excluded and the temperature remains uniform. As soon in the spring as the colony is placed upon its summer stand, the forces from without (light and heat) start those locomotive actions by which foraging is begun, and which in time bring in those stores of force (nectar and pollen), which, when liberated in the body of the bee, initiate the motions incident to brood-rearing. The colony is thus changed from a state of rest to a state of motion; and if this motion (gathering honey and pollen, and rearing brood) is represented by a line, the motion will be found to continue in a straight line in a fairly good colony (in this latitude) from the 15th of April until the 15th of June. Motion now ceases (comparatively speaking) for a brief interval in this direction, and starts in a new one—that is, in the direction of finding, preparing for occupancy, and moving to a new home, or, as we call it, swarming. But what was the force which initiated the new line of motion? Obviously it was the hive. Motion, that of the life functions of the bees, continued in a straight line until the limits or confines of the hive were reached, and then was deflected, for a hive is matter, and matter, though it has no specific name, is a kind of force—the space-occupying kind of force. Or, as otherwise expressed, motion continued in a straight line until the walls of the hive imposed impassable limits when motion followed a new line—a line of less resistance—that of migrating or swarming.

We have thus far dealt with those normal swarms which issue during what is called the swarming season. It remains, however, to consider those seemingly anomalous swarms which, with one exception, do not issue during the swarming season, but before that time, when food is not abundant in the fields, and when numbers are not great in the hive—conditions which are the reverse of those under which normal swarms issue. How, then, can a law be formulated which shall embrace changes that occur under opposite sets of conditions? Let us see.



Swarms which appear early in the season come out for either one of two reasons—because the food is exhausted, or because the numbers are depleted. In either case, conditions have arisen which oppose barriers to the performance of function. None of the functions of bees, or of animals in general, are possible in the absence of food; and the functions of bees can not continue long in the absence of sufficient numbers to maintain a temperature requisite for brood-rearing. Under such circumstances there are two courses open—remaining in their present abode and becoming extinct, or removal in search of a new abode in an effort to avoid extinction.

We will consider next those swarms which issue before the swarming season proper opens, when there is no congestion in the hive, and when, as before, nectar is not abundant in the fields. These are the swarms which appear on what are called supersedure cells. An examination of the combs, deserted by such a swarm, generally reveals the fact that the queen was either inferior or failing—the effect in either case being the same. The combs are only partly filled with brood and eggs. There are scattering worker-cells containing drone brood, and the brood itself is more or less scattered. Here, as before, a resistance was imposed in the way of perpetuation, and, therefore, in the way of function. But why, it may be asked, did not the bees merely supersede the queen and thus remove the obstruction? To this question a satisfactory answer may be given.

Keen observers must have noticed that supersedure swarms do not issue until brood-rearing has been under way for a considerable length of time, and when, therefore, the swarming season proper is approaching. Furthermore, cells have been started, and these are conditions which are inseparably connected with normal swarming. The presence of queen-cells suggests the idea of swarming, for the same reason that the appearance we call ice suggests coldness, and the appearance we call fire suggests heat. Arising, as these feelings always have, in connection with these particular appearances, these appearances necessarily call up the feelings with which they have become indissolubly connected, and so with swarming. Swarming has, through countless generations, been associated with the building of queen-cells, and, therefore, it is not at all strange that, with the actual approach of the swarming season, when there is considerable brood in the hive, the building of queen-cells should call up the idea of swarming.

Here, again, swarming was primarily due to restricted function—the perpetuation of the colony, and, therefore, of the individuals which compose it, being jeopardized, for the mere raising of *some* brood is not enough; there must be sufficient to insure storage of enough surplus honey to carry the colony through the next period of scarcity in nectar.

There still remain for treatment those swarms which trouble us during the swarming season proper—swarms which issue from hives which are by no means congested, and in which queen-cells may or may not be present. These swarms issue, not because the conditions in their own hives impel it, but because the conditions in neighboring hives impel it. The excited issuance of immense clouds of bees, filling the air with their mighty roar, which, once heard, is never to be forgotten, has a powerful influence in exciting adjacent colonies to repeat the performance. It appears, then, that these swarms, though not directly, are indirectly due to the restriction of function.

The law of swarming, then, may be formulated thus: Swarming, among bees, is a migratory habit which takes place under the pressure of conditions which render difficult or impossible the performance, by the inmates of the hive, of their respective functions.

A few words must now be appended relative to after-swarms. That these are due to restricted function hardly needs stating, seeing that they are merely smaller additional waves of migration following the first great wave, and taper off more or less abruptly, depending upon the size of the colony and the amount of nectar coming in. Attention must, however, be called to the fact that they occur in obedience to the simple law of motion—that motion started in a given direction continued in that direction, the motion here being nervous motion—nervous change or nervous impulse through certain channels which is the correlative of thought.

But why does swarming, after a time, cease? The answer suggests itself. Restricted function having initiated swarming, it necessarily follows that removal of restriction causes its discontinuance—conditions finally arising after excessive swarming, similar to those under which the colony began its functions in the spring—a small number of bees, abundant room, many empty cells, small amount of nectar coming in from the fields, honey in combs, etc.

Thus, then, swarming begins because conditions inside of the hive restrict function, while conditions outside of the hive make function possible, and swarming ceases because conditions outside of the hive will restrict function, while conditions inside of the hive will facilitate function. In both cases motion follows the line of least resistance.

Cadotte, Wisconsin.

## UNITING PARENT COLONIES THAT HAVE SWARMED.

BY W. T. DAVIDSON.

I prefer ten-frame hives with full sheets of foundation when a colony swarms. I remove the old hive (No. 1), put the new hive with the swarm on the old stand, and open the old hive and shake all of the bees in



with the swarm except about one quart, which bees are left to take care of the brood. I move the old hive back and make the entrance very small to prevent robbers. Then when the next swarm comes out I set the old hive, No. 2, on the old hive, No. 1, and, 21 days later, I remove hive No. 1, shake the bees in front of No. 2, and put on a super if the bees are getting honey, and keep No. 1 to put a late swarm in, or use it for bees from a tree. In shaking the bees I am very careful with the frames that have queen-cells, as rough handling will injure the young queen.

Swarms that are treated in this way during a honey-flow will be likely to need a super in four or five days. If the two old hives, Nos. 1 and 2, have begun work in the supers I put No. 1 super on the swarm from No. 1, and No. 2 on a colony that is slow about going into the super.

Velpen, Ind.

### BREEDING TO ELIMINATE THE TENDENCY TO BALL QUEENS.

BY CH. NOEL EDDOWES.

On page 278, May 1, Mr. B. B. Fouch asks the question, "Why are the queens of natural swarms killed?" and you invite others to give their experience or explanations on the subject. In my opinion the explanation is simply a matter of breeding, and the remedy is selection. My reasons for making this statement are based on experience. I have bought bees with the characteristic so strongly developed that the simple fact of lifting the hive-cover was sufficient cause for the bees to ball their queen. By careful selection of breeders I have eradicated this tendency under normal conditions and usual manipulations.

A bee-keeper whose acquaintance I made here told me that he considered the balling tendency of bees in Jamaica a perfect curse. For the benefit of Mr. Fouch I will give you the system I use to test the bees of my breeders for this defect. Having selected the queen from which I intend to breed, I go to her hive and take out the frame on which I find her, and turn it upside down and place it on top of one of the other frames in the hive with the top-bars parallel. I then cause the queen to run off by driving her with the point of my finger until she crosses the two top-bars of the frames and goes below. In doing this it is advisable to touch the queen with the finger, so as to bring out to light any tendency to balling that may be there. As soon as the queen is below I throw the bees off the frame on which she was, into the hive, and put the frame back into its place and close the hive and examine again in half an hour to see if the bees are balling their queen. This must all be done without smoke or other intimidant.

Never breed from a queen whose bees show any tendency to this defect, however

good honey-gatherers they may be, as in these latitudes the balling tendency appears to be most easily intensified.

As the balling defect appears to be general in Mr. Fouch's apiary, his quickest and most certain way of getting rid of it would be to requeen with queens from a well-known queen-breeder, who can give assurance that his bees are free from the undesirable characteristic.

Halfway Tree, Jamaica, May 5.

[Very possibly this balling tendency can be bred out of the bees themselves; but in our opinion balling is more often occasioned by the peculiar behavior of the *queen* toward the bees than because the *bees* are inclined to ball her. Years ago we had one old hybrid queen that we used for supplying queenless colonies with eggs. We could pick her off the combs and drop her into any hive and shut the hive up. On several occasions after this we watched her. She would go about her egg-laying duties as if she had always been in the hive. In other words, her behavior was so natural and easy that the bees accepted her as a matter of fact. If a stray bee showed hostility she would fight it as if she were boss of the whole ranch and expected her subjects to join issue with her; in other words, she had a way that indicated her royal and sovereign rights—rights that she would not allow any foster subject of hers to trample on.

On the other hand, we have had queens which, as soon as they were let loose among the bees, would squeal in fright, hold up their fore legs as if they *expected* to be balled, and such queens are usually not disappointed at the reception they get, for they are almost invariably balled by any and all bees. While the scent factor, or colony odor, may have an influence, we are beginning to believe that, during the period of confinement in the cage, the queens themselves become accustomed to their environment, and as a result act naturally when released by the bees. It begins to look as if the principal factor contributing to the successful introduction by the caging process is a scheme by which the bees quietly release the queen by eating out the candy. The old way of opening the hive and disturbing the regular routine of the colony to release the queen, often caused the bees to ball her, when, if she had been allowed to crawl out of an exit, which the bees created quietly, she would have been accepted without hesitation on the part of the bees.

At the between sessions at the Massachusetts convention we had some talk with Mr. Arthur C. Miller, who, as our readers know, has for years believed that the scent factor in the matter of introduction has been overestimated, and we are coming to believe that he may be right. Mr. Miller has given this subject no little thought, and we should be glad to hear from him at his convenience; for we believe that no man in the United States has made the internal condition of a colony more of a study than has he.—ED.]

## BEE-KEEPING IN FLORIDA.

## Some Representative Bee-men of Florida.

BY E. G. BALDWIN.

*Continued from last issue.*

Three reasons make the work and apiaries of Mr. R. W. Herlong, Fort White, Fla., especially noteworthy. First, he is the only genuine Floridian among the leading bee-men of the State. Second, he is in a section where practically all of his marketable honey comes from *one* source, the partridge pea; and, third, he is one of the very few men who produce comb honey. Mr. Herlong started eleven years ago with three colonies purchased from a neighbor. That summer the three gave him four swarms and 300 lbs. of honey. From that modest beginning he never lost his enthusiasm for the vocation, and has increased till now he has 900 colonies in 13 different apiaries, ranging from  $2\frac{1}{2}$  to 10 miles apart.

From choice a comb-honey producer, he uses the eight-frame hive, L. size, and is probably right in doing so. Mr. J. J. Wilder, of Cordele, Ga., who has recently started two apiaries in Florida, and produces comb honey, also uses the eight-frame hive. Mr. Wilder is about 25 miles from Mr. Herlong. Like Mr. Marden, of Apopka, Fla., Mr. Herlong likes the bee-shed for his bees, as a protection from the sun (see Fig. 12). The objection that the writer has to sheds, so far as he has observed them, is that they are too shady in early spring when the heat of the sun is needed to warm up the brood-nest for early breeding. The sun is the life of Florida; and here at DeLand colonies shaded in February and March do not do so well as those out in the sunshine. Of course, the hives last longer, without paint,



Fig. 11.—R. W. Herlong, Fort White, Fla., and thirteen-year-old son, his only helper.

under a shed; but practically everybody paints his hives in Florida.

Mr. Herlong is a genius at moving bees. The past summer he moved 150 colonies distances varying from two to sixteen miles, and all without a single mishap of any sort.



Fig. 12.—One of the thirteen apiaries of R. W. Herlong, Fort White, Fla., who has 900 colonies in all, producing comb honey exclusively. The shed shown is of the type that Mr. Herlong prefers, holding one row of hives only, which are operated from the front and rear. This is the section of the sensitive pea, Mr. Herlong's one source of honey.



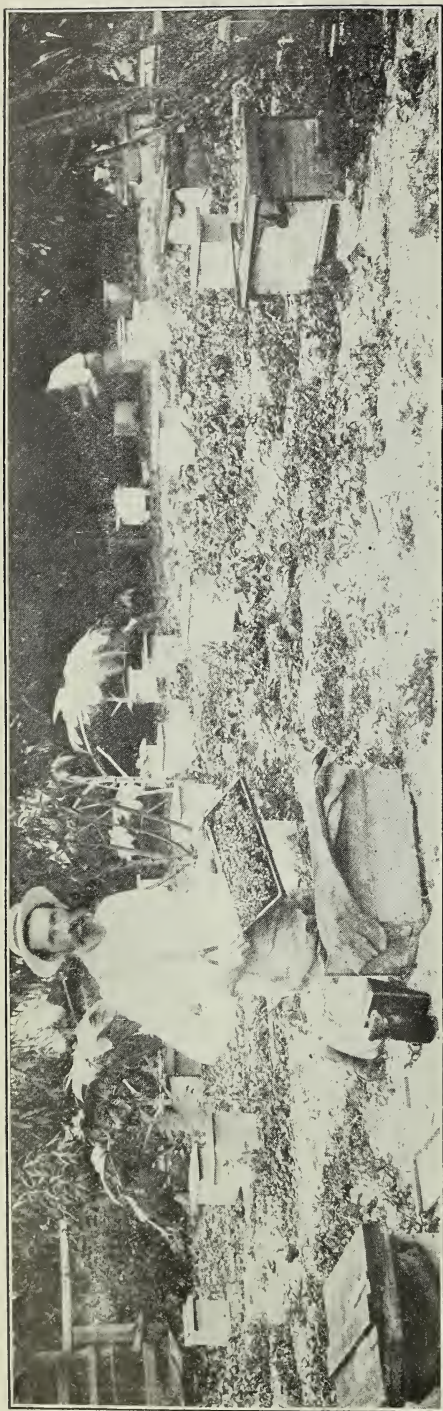


Fig. 13.—J. B. Case, Port Orange, Fla., and one of his queen-rearing yards. Mr. Case is holding the comb on which is his choice breeder.

He is also fond of bee-tree hunting, but only for the sport and pleasure of it, not for profit, for he, like all others here, declares that the gain in cutting down a tree, good and bad together, is very slight. The bees are usually in very large trees, and the heavy fall mashes bees and combs so sadly that it is seldom the bees can be saved with a queen, and combs are almost always worthless. He has one yard of pure Carniolans, one of pure Caucasians, and three of pure Italians; the rest are a mixture of all. He is a hustling bee-man, who does not believe in getting cross over his work, but practices his motto, which is, "Smile while you work." Fig. 11 shows how his good nature is outside as well as within—a quality that seems transmitted to his thirteen-year-old son. Mr. Herlong is a man well worth knowing.

Readers of GLEANINGS should make the acquaintance of Florida's veteran queen-breeder, Mr. J. B. Case, of Port Orange, on the East Coast. A bee-keeper all his life, he has been a breeder of queens twenty years. Of New Jersey originally, he has kept bees as a specialty in Florida for 24 years, and always on the East Coast. Of his two queen-rearing apiaries, one containing 100 colonies is shown in Fig. 13. The other contains 60 full colonies and 20 nuclei. In the former apiary, shown, there are about 300 nuclei on an average. Situated on the picturesque Halifax River, Mr. Case used to call his location one of the best for honey in Florida; but the changing conditions, recorded elsewhere in this article, have made it very poor for surplus honey. Honey-flows are too short and light, but favorable for stimulating breeding, and hence good for queen-rearing. He uses scuppernong grapevine trellises for shade, as shown in Fig. 14, and lines up his bees in two rows of hives. Strong colonies alone, he finds, can protect themselves against the attacks of the nocturnal or "bull-dog" ants, though he also wages incessant warfare on their nests. The past year, however, he tells me that he has grown lax about fighting the nests, but does not suffer much more than when he was more zealous in that particular. He attributes it to the gradual elimination of the pest. He has a sovereign remedy against them, and was the first, so far as I know, who used it. It is as follows: Mix equal parts of tartar emetic and sugar. In the runs place this, in shallow boxes covered with screen to keep bees from it; the ants eat it with eagerness, carrying it also to their nests, where it is fed to the young larvæ with fatal effect. It is far superior to arsenic and other poisons, in that it will not so easily drive the ants away from it from being too strong, and will not prove fatal if perchance any thing or any one but ants should partake. He uses strong nuclei, three to four frames in each one, and agrees with the writer that only *strong* nuclei are worth fooling with in Florida. For example, Mr. Shumard, who has been using, or trying to use, the baby nuclei the



past spring and summer, had almost all his nuclei eaten out by ants. He will use them no more.

Mr. Case is an unusually careful observer of little points, exceedingly particular about details of his art, and has succeeded for this reason. He belongs to that pioneer coterie of bee-men whose achievements in the days of mangrove honey have never been equalled, and have all written their names large in the history of Florida's annals of bee culture. There is a simplicity and straightforwardness about him that is very attractive.

De Land, Fla.

*To be continued.*

## BEE-KEEPING IN JAMAICA.

BY W. C. MORRIS.

The bee-keeping industry in Jamaica is only in its infancy. There is flora to support profitably a million and a half colonies, and there are only about 112,000 colonies on the island, the greater part of which are in home-made hives constructed of kerosene-cases, similar to our two and five gallon can boxes, which can be bought for about 5 cts. each. Nine standard Hoffman frames just fit these boxes, and the covers and bottom-boards are made from this same  $\frac{1}{4}$ -inch stuff. Because of using this thin and seldom painted wood, the hives warp and twist, the covers check and crack, and the heavy rains kill thousands of larvæ and bees. Under these conditions it is impossible to build up the colonies to proper strength for commercial results.

A large number of the bee-keepers go to Kingston, to the commission men, and sell their estimated crop before it is produced, and get as much of the money as they can in advance. Not all of the bee-keepers are in this class; but the progressive men are decidedly in the minority. There are some with a thousand colonies or more, but the average apiary runs from 50 to 100 colonies. The 1909 crop was about 2,500,000 lbs., and Jamaican honey is now selling in London, where most of it goes, at 32 to 37 shillings per 100 lbs. (112 lbs.), or, in other words,  $7\frac{1}{4}$  to  $7\frac{3}{4}$  cts. a pound. When freight, commission, and package are deducted,  $5\frac{3}{4}$  to  $6\frac{1}{2}$  is left for the producer.

There are big possibilities for bees in Jamaica. A man with a capital of \$2000 or more can go there and make a profit of several thousand a year. Labor is cheap—from 25 to 50 cts. a day. Women can be had for 18 cts. a day. My assistant had a woman to cook and take care of his house, and she paid for her own food, for 87 cts. a week.

Water is hard to get in some places. At Four Paths, where the American Bee Products Co. have their yard, it comes from a deep well. It takes a horse to draw the water, and twice a week water is drawn for all that section of the county. A large hog-head is kept filled for the bees.

The railroad is a one-track affair—slow and dingy. In the city of Kingston there

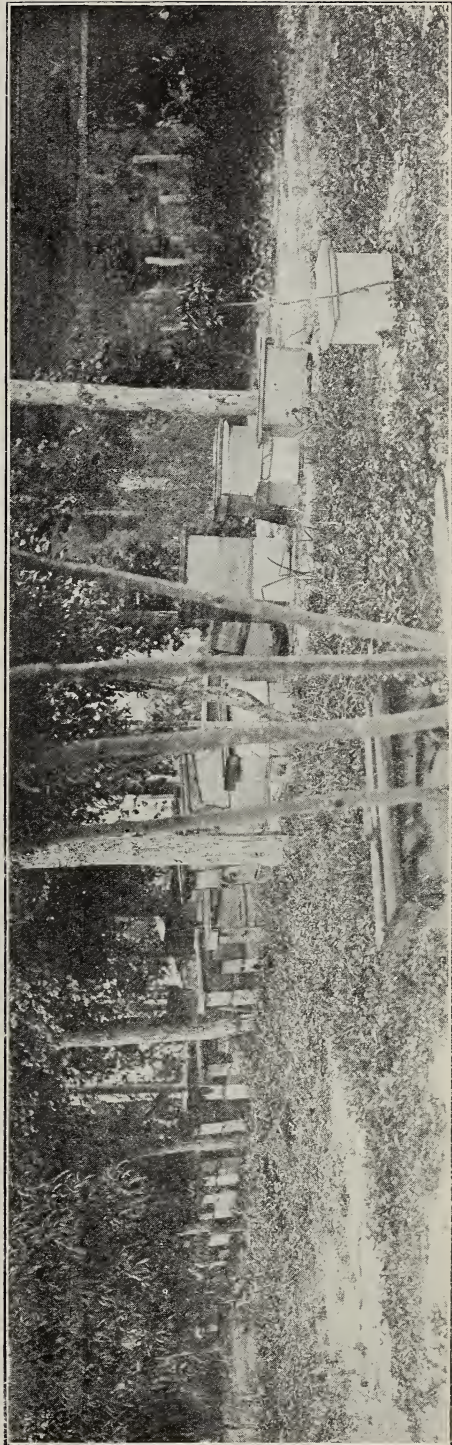


Fig. 14.—Another of Mr. Case's queen-rearing apiaries, consisting of two rows of full colonies with a wide passage-way between, under a grapevine trellis.





Fig. 1.—Apiary of The American Bee Products Co., Four Paths, Jamaica.

are only two restaurants. Outside of Kingston, and especially in the smaller towns, there is not a place where one would care to get a meal, and no place to stay over night. If one decides to go there to keep bees he will have to give up many of what we consider necessities. But there are unlimited

possibilities for capital at Jamaica. A man willing to go there and rough it for a few years can make considerable money in the bee business.

Fig. 1 is a portion of the apiary of the American Bee Products Co., at Four Paths, about 40 miles from Kingston; and Fig. 2

shows the same yard, with the residence and extracting - house. A couple of cots, a few chairs, a table, and cooking utensils constitute the furnishing. Ants and toads are troublesome. A nest of ants will clean out a colony in a night, eating honey, larvæ, and even bees; and toads eat thousands of bees if they are not killed. A lantern and a club, several nights in succession, will rid the yard of the toad nuisance, and poison will dispose of the ants.

The flavor of the honey is good, but the body is somewhat light. Logwood is the principal source. The trees in the illustrations are logwoods. Other sources of honey are lignum-vitæ, fiber cotton, canshar, sweet Christmas pop, genip, mangroves, orange,



Fig. 2.—A corner of the American Bee Products Co.'s apiary, showing the honey-house in the background. The trees shown are logwood.



akee, aloe, and many other native weeds.

Jamaica is free of foul brood, and the bee-keepers allow no bees to be brought into the island. All queens have to be changed to new cages, and the cage and old bees destroyed by the inspector, before they can leave the boat, so the chance of its getting a foot-hold is slight.

To get best results, every colony should be requeened once a year in October. Every effort must be made to have the bees strong by Dec. 1. The queen is inclined to loaf during November, and the bees will clog the brood-chamber with honey.

This is the one difficulty to overcome, if one wishes to get bumper crops. I have figured out a plan which I believe will overcome this difficulty, and it is being tried there now; and if it works I will give it in detail to the readers of *GLEANINGS*. The average crop obtained is 50 lbs. per colony; but with intelligent management it could be easily increased to 200 lbs.

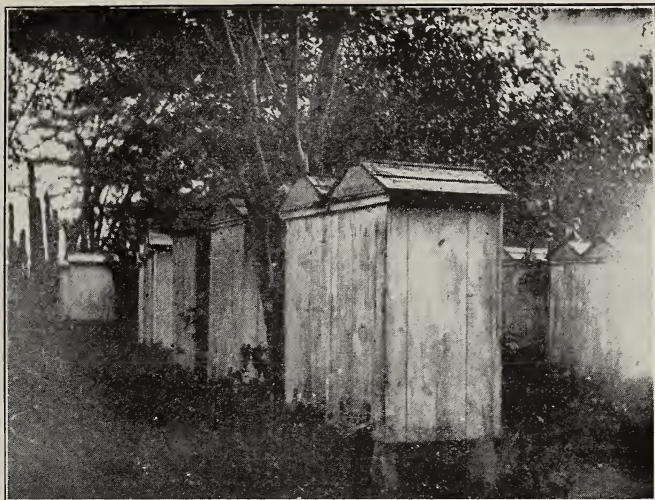


Fig. 4.—A view of the Eddowes apiary in Jamaica.

APIARY OF C. N. EDDOWES, BEE INSPECTOR  
OF JAMAICA, B. W. I.

Mr. C. N. Eddowes, Bee Inspector of Jamaica, was born in South America in 1882, of English parents, and he is one of the most progressive bee-keepers on the island. Jamaica is free from foul brood, as I mentioned above; and as they allow no bees to enter, the chance of its getting in is slight.

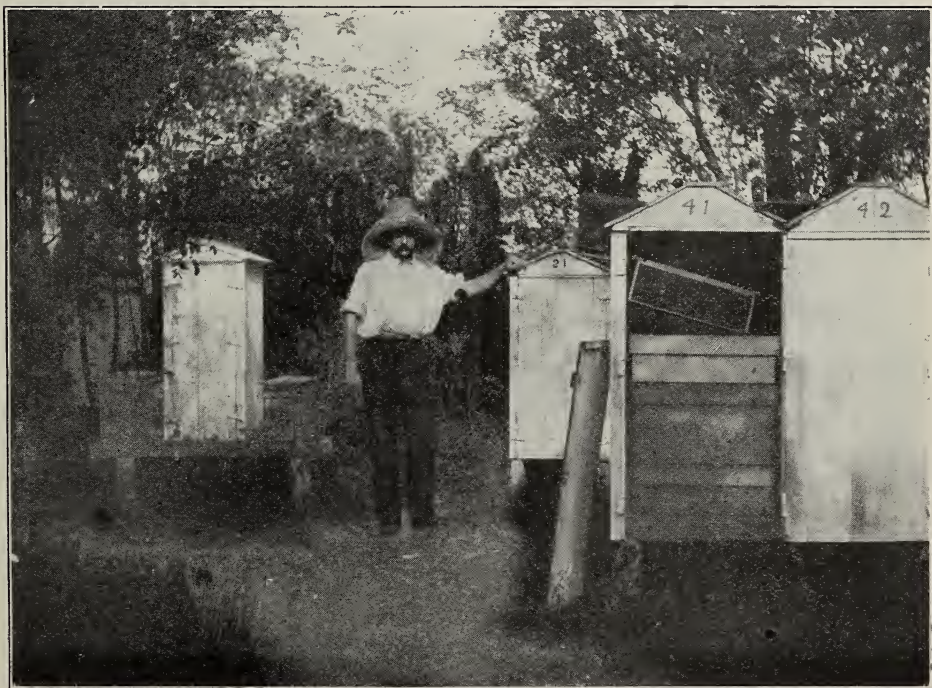


Fig. 3.—Mr. C. N. Eddowes, Bee Inspector for Jamaica, in his apiary of Simmons hives.





Fig. 1.—J. S. Cotterell's apiary and side-hill honey-house, Auckland, N. Z.

All queens imported are changed to new cages in one of the staterooms of the ship they arrive on, and the accompanying bees are killed and the cages burned. The inspector does this himself, and mails the queens to the owners. It is only fair to Mr. Eddowes to state that his labors are mostly for the good of the cause, as he receives very

little compensation. He is a hard-working, conscientious, and just official, and the Agricultural Department of Jamaica is to be congratulated on getting so able a man to look after the apicultural interests.

Fig. 3 shows Mr. Eddowes at his half-way-tree apiary. Fig. 4 is a partial view of the same yard. Mr. Eddowes uses the Sim-

mons hive; and from 50 colonies in 1910 he took 4400 lbs. of extracted honey, and received net in London, 66 cts. per gallon after freight and commission were deducted. He also increased this yard from 50 to 88 colonies. With this hive he has no swarming. The hive-bodies and supers slide in on cleats, and he can remove body or super as easily as opening a bureau drawer. He uses shallow supers with frames 5×16 inches, and runs this yard for extracted honey.

The illustration shows one of the hives open. The bottom section is an empty super without frames,

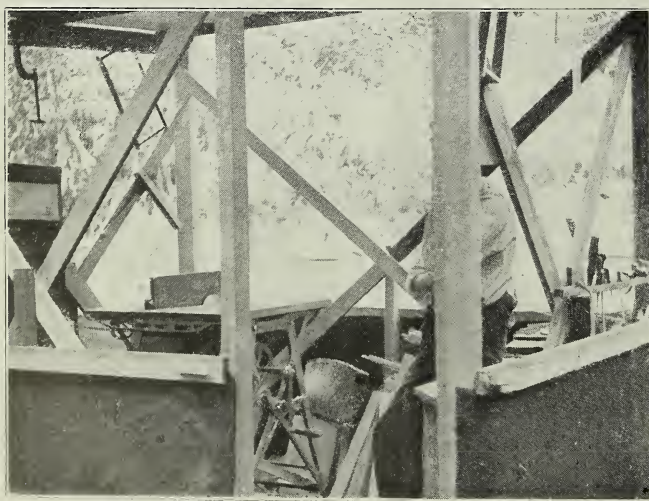


Fig. 2.—J. S. Cotterell's circular-saw work-shop in New Zealand.



which serves as a dummy. This is used to hold back swarming. Above this is the hive-body and one super, but there is room for three supers.

In Fig. 3 are shown some smaller four-frame hives like Pratt swarming-boxes, in which the nuclei are started and the queens mated.

Mr. Eddowes is just outside the city of Kingston, where the land is mostly cultivated, so that it is not considered a good locality; but his crops are above the average. There is no comparison between his neat and well-kept apiary and the average beeyard at Jamaica with bees in kerosene-case hives.

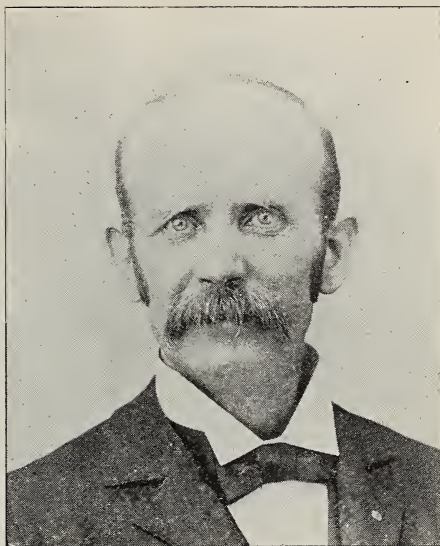
No one could have been more royally received or delightfully entertained than I was during those visits, and in the evening we sat on the front porch and talked bees, for Mr. Eddowes is always willing to tell his fellow bee-keepers what he knows; and if his ideas were published they would make a valuable addition to the works on bee culture.

Yonkers, N. Y.

#### BEE-KEEPING IN NEW ZEALAND.

BY J. S. COTTERELL.

Under separate cover I am sending some photos of my apiary, which I trust may prove of interest to the readers of GLEANINGS. The apiary is planted with peach-



GEO. E. HILTON.

Died July 13, 1911. See Our Homes this issue.

trees, with shelter-belts of wattle and gum trees giving an almost constant slow flow of honey the year round. The main crop of honey is gathered from white clover.



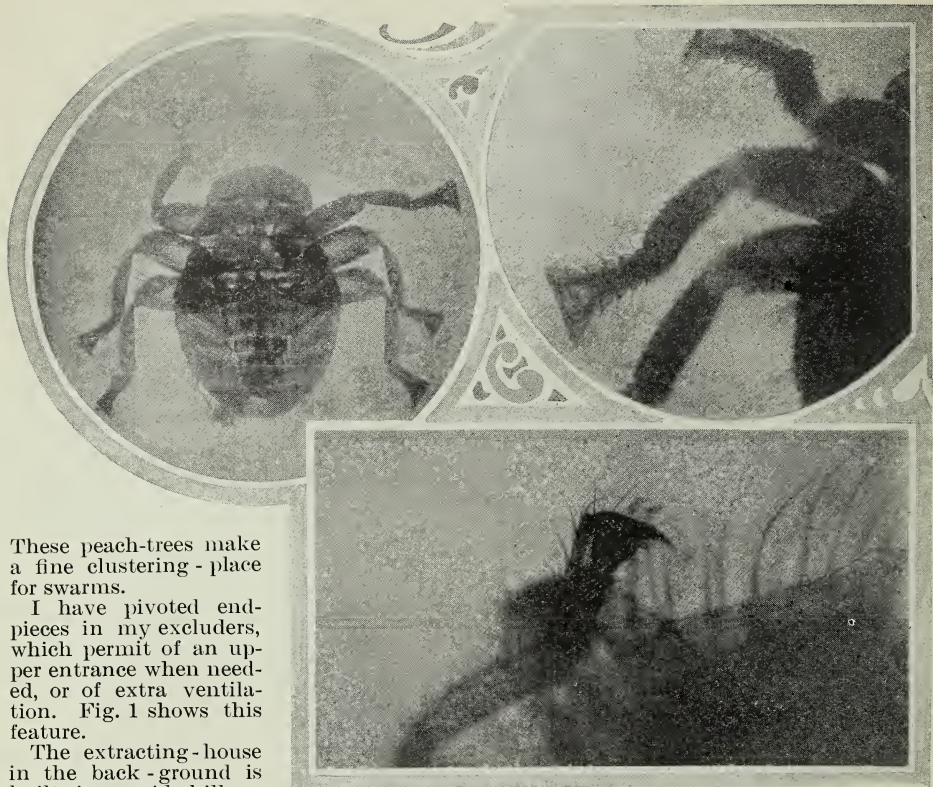
A FINE FIELD OF WHITE CLOVER IN IOWA.

On p. 357, June 15, you say you will have an engraving of a Texas clover-field. Place this beside it and see which is the better one. White clover does not yield honey this year. The crop will be short. Strawberry Point, Iowa, June 23.

H. E. ROTH.

[The Texas picture of white clover was published on page 397 of our issue for July 1. Your picture shows a better field.—ED.]





These peach-trees make a fine clustering - place for swarms.

I have pivoted end-pieces in my excluders, which permit of an upper entrance when needed, or of extra ventilation. Fig. 1 shows this feature.

The extracting-house in the back-ground is built in a side-hill so that the honey "runs through it" on the gravity plan. The walls of the building are of wood while the roof is of iron. A honey-store beyond is built of concrete, with a composite roof.

My work-shop is a skeleton construction, with removable felt panels and an iron roof. Arateatree, N. Z.

THE BEE-LOUSE, SOMETIMES FOUND ON YOUNG BEES, QUEENS, AND DRONES.

### THE BEE-LOUSE (*BRAULA COECA*).

DR. BRUNNICH.

On page 118 of the Feb. 15th issue for 1910 there is a reproduction of a bee with a louse on its thorax; but I see that in the statement accompanying the photograph the idea of the mode of nourishing this little insect is not exact. The error is excusable, for I find in a very good book on insects, in the description of the bee-louse, the following passage: "In the mouth there is a suctorial sting (?) in a sheath, and the louse is often sitting for hours quite still on the bee, the suctorial sting (?) bored in, sucking the vitals of its host." Cowan, in his "Guide-book," p. 160, in his description of the parasite, does not mention the manner of taking its food.

The queen, which harbors sometimes 50 or more lice, would be indeed a deplorable

being if it should be stung and sucked out by so many parasites without being able to defend herself against them; and I think she would soon be killed if this were true. But, happily, the bee-louse does not possess a suctorial sting, and the parts of its mouth are constructed for sucking only liquid food. In most of our German bee-books the manner of nourishing the parasite is mentioned as taking place when the queen or bee is fed by some brood-bee, and this supposition is, indeed, the most probable, though to my knowledge no one has observed the act till now.

The chitinous harness of the bee's thorax is so strong that it would be almost impossible for a suctorial sting to penetrate it. Again, the parasites are to be found only on queens, young bees, and drones—never on old bees which are flying out and taking their food themselves. The bee-louse must have a very good instinct for picking out the young bees and the queen.

The structure of the bee-louse is rather intricate, as the accompanying photo shows. Like all insects, the body is composed of three parts—the head, the thorax, and the abdomen. The form of the head is very irregular, with many hollows and protuberances, and, like the whole body, it is of a



strong consistence. There are no eyes at all; but in two deep hollows we find two feelers, each composed of three short segments, mostly concealed in their cavities (they are reproduced in the photo). The mouth is situated on the under side, with an upper lip and two bulky lip-feelers.

The legs are similar to those of the bee, but with very different extremities. We find there a very nice comb, with which the parasite takes an exceedingly firm hold in the hairs of the bee, so that it is quite impossible to strip it off with a match or tooth-pick. On the back side there are two appendices with fine hairs, which I consider an organ of touch.

The abdomen consists of five segments, and contains (in the female) the ovaries, which contain only four eggs, which hatch successively, nourished by the insect till they have a certain size. Then the mother lets the small, smooth pupa fall on the floor-board of the hive, where it develops its chitinous surface. At first the louse is nearly white, and becomes browner, the older it is. On the bottom-board the little parasite waits till a bee is approaching. Being very active and quick it is easy for it to climb on its back.

With us, I think most colonies have more or less lice on the bees. There is generally but one on the queen; but if she is an old one there may be a great many. In this case the queen may indeed suffer. On young active queens lice are seldom found, because it is not comfortable for the parasite if the queen is putting her head and breast into a cell every moment.

A very simple and sure way to dislodge the lice is to lay a carton on the floor-board, and put there for a night a piece of camphor of the size of a hazelnut. If one takes small pieces the bees carry them off. In the morning, if one will draw out the carton all the lice lie there paralyzed by the vapors of the camphor.

Rheinau, Germany.

#### FOUL-BROOD INSPECTORS OF CALIFORNIA.

Some Experience with them; Direct Legislation, Past and Present.

BY W. A. H. GILSTRAP.

My first foul-brood scare was nearly 21 years ago. It was natural that my partner, who was more experienced in the care of bees than I, should take the lead. He argued that, as the bees in one fine colony were not sealing their brood, it must be diseased—evidently foul brood. We could not risk having foul brood scattered on the flowers all over the range by one colony, so we burned it, hive and all. After I learned that bees sometimes do not care to seal their brood, and that foul brood is neither a miasma nor a dust, and had learned how to cure the disease, an intelligent horticultural commissioner asked me to examine his bees,

as there was something wrong with the combs, and he was anxious to know whether it was foul brood. An investigation revealed the cause of his uneasiness. There was some pollen in the combs! Some old bee-keepers may laugh at this; but we of the younger set knew nothing of bees except as we learned it.

Finally, after I was familiar with foul brood, I saw an infected apiary, and helped get a stranger in as inspector, on recommendation of his neighbor apiarists. At that time the law said the diseased colonies should be burned or buried in the earth the night after the owner or keeper of the bees was notified of their diseased condition. An apiary of 31 colonies had 17 condemned by the inspector who allowed them to be left alone for 57 days. I then went on the war-path. Soon a deputy inspector burned the bees, and several apiarists expressed themselves to the supervisors of the county as being well satisfied with what the inspector had done. Later I was told that the hives, which were very rich in honey, had been piled on hard and nearly level ground, and burned, and that the honey and wax which had melted and dripped down, had been left in that condition uncovered.

Finally California learned of a man named McEvoy, and our present law was enacted. When I speak of an inspector under this law it may be a deputy, and these remarks apply to more than one county. Rambler's report, p. 12, Jan. 1, 1902, GLEANINGS, referring to cleaning wires which had been in contact with infected honey and wax, brought a storm of protests later. Some other queer inspection might be of real value to GLEANINGS readers.

Our law permits an inspector to compel the transfer or destruction of box hives within three miles of foul brood. Mr. Blank had a small apiary a trifle over half a mile from mine. Mr. Inspector approached me with something like this:

"Wilson, don't you think Blank's bees are in your way?"

"Yes, more on account of the strain than by overstocking the range."

"Well, if there was foul brood within three miles he would have to transfer his bees from box hives, or have them burned. I don't think he would transfer. Bees could be put within three miles of his bees without endangering yours, and later they could be inspected and found diseased. What do you say?"

I did not "bite," and perhaps there has never been any foul brood within five miles of that man's bees. The inspector was supposed to be a friend of both Mr. Blank and myself. This is not a kick at the law, but a caution about selecting inspectors. Never sign a petition for any thing just to accommodate some one. Show friendship in other ways.

One inspector held office several years, much of the time with foul-broody bees in his charge, and was flatly defied by at least

one bee-keeper. He forced no one to observe the law. One other inspector, however, was drastic enough to suit the most fastidious. He even ordered second-hand hives to be burned, where there was no evidence of disease on the premises, even when he had no way of learning why the bees had died. Of course, he was not under bonds.

One of our inspectors wanted an ordinance passed condemning all box hives in the county, saying that he did not consider it fair to make a man transfer on one side of the road and leave other bees in boxes across the way because they were beyond the three-mile limit; that it would be more economical to the county to put all box-hives under sentence; that, if the frame hives in the neighborhood were all in good condition, there was no certainty that the colonies in box hives were all right. At that meeting of the supervisors, several bee-keepers were present, only two speaking in opposition to the inspector, and none for his plan. One speaker told how the present law was framed, and what kind of men Mr. Hambaugh and Prof. Cook, the leaders in the work, were; what care they used in consulting inspectors and others, and considered the law all right. During an attack of scarlet fever in his neighborhood, only such persons as experts in that line considered endangered were quarantined; others were not. He referred to an interest in the management of several apiaries near Crow's Landing, which the inspector then had, and mentioned that the inspector had said that he got a better crop from an apiary whose brood-chamber was only boxes, although the range was no better than one other. The inspector did not deny this. Mr. Jensen, a farmer bee-keeper, opposed the ordinance. He had bees in frame hives and box hives. Of course, the boxes were much cheaper, and there was little difference in the returns to him.

The ordinance failed. The next month the inspector changed it a trifle, and got it through on the sly, then went to Mr. Jensen and forced him to pay over \$50 for hives or have a lot of his bees burned, probably 15 miles from the nearest foul brood. So much complaint came in that the supervisors discharged the inspector. He presented a petition for reappointment, and it was "placed on file." A prominent bee-keeper then presented a petition for his own appointment, and that was "placed on file." The supervisors seemed disgusted, and unwilling to act.

Lately a move, mostly by inspectors and the State University, I think, has been on foot to have inspection under control of the University; but the bill could not get through the Senate, as it met strong opposition from bee-keepers. It might be rash for me to discuss a proposed law without seeing it; but it would probably be better suited to a State the size of Delaware than California. Of course, the man who had a "pull" with the State University would get the job.

An inspector should be able to cure his

own bees with reasonable dispatch and economy, varying his treatment with the honey-flow, season, strength of colonies, etc. He should be honorable, reasonable, prompt, and firm with others—neither a do-nothing nor a despot, not charging the public for critical examination of whole apiaries that are in good hands and healthy. With such men our law is certainly good, and, in my opinion, the honey-producers of California should be very careful about changing. Especially beware of a law that does not dare to come out in the open for examination.

Ceres, Cal.

## THE PREVENTION OF SPRING DWINDLING IN CALIFORNIA.

Bees Left Full Stores.

BY J. F. CROWDER.

The complaint comes from every side that bees have left full hives of honey, and have absconded. This, I think may be explained, first, by the fact that they perished from old age; for, as the queen stopped laying in June, the last bees were at least six months old when the first spring honey came. Those gray-haired veterans survived only one or two trips to the field, consequently the colony lost its first field force, with a resulting shortage of new honey and pollen. Thus the bees perished one by one with hives full of honey.

I have seen hives with at least 25 lbs. of honey in them this spring, with one teacupful of little old black scrawny hairless bees, between four and six months old. When my partner and myself first visited our apiary this spring we were thoroughly disgusted at the sight of our bees. They all appeared to be of the blackest of the black variety; but upon investigation we discovered that they were the old bees from last season. Now the younger generation is coming on, what a difference! It looks as though we had been requeening; but they are all of the same family.

SEASONS DIFFER ONLY TEN OR TWENTY MILES AWAY.

Lateness of pollen-producing plants in the mountain districts is, I think, another cause of bees absconding. Southern California is a land of varied climates, with frigid weather in the mountains, and perpetual summer in the valleys. When the oranges began to bloom in early April, the sea-breezes taking the aroma mountainward, I saw bees come to the orange-groves in bunches from ten to fifty swarms per day, many where some hopeful keeper had been trying their quality. I have seen many swarms of black bees this season with as pretty an Italian queen as one would wish to see, all coming down to the land of Eden, for the orange-groves of Southern California are the bees' paradise.



## HOW TO PREVENT ABSCONDING AND SPRING DWINDLING.

To stop this great loss the bee-keeper should stimulate feeding in September or October in order to get the queen to bring on a new batch of brood that would develop into young and vigorous bees in the spring. Then in the spring the keeper should feed some substitute for pollen; otherwise spring dwindling will result. Don't expect bees from four to six months old to take care of themselves during the cool weather of the early spring months, as one or two trips are all they can stand. Suppose two or three thousand old bees in an apparently strong colony should perish on the wing on some fair day, would you call it absconding or spring dwindling?

### BLACK OR EUROPEAN FOUL BROOD; WHO IS RESPONSIBLE?

The State of California has been "handed a lemon" in the shape of this deadly disease. Some unscrupulous queen-breeder certainly did hand it out to the San Joaquin Valley. Selma, Fresno County, where it broke out in 1909, was the starting-point, and it was there that in 1908 several of the most prominent bee-keepers ordered several hundred queens in lots of three or four hundred from those Eastern breeders; and, as sure as fate, they sent other stuff than bees and queens. Those queens came from three different breeders in the East and South.

I take the following from the *California Cultivator*: "County Bee-inspector Christman, of Fresno, reports a total of 2664 colonies inspected during the month, of which 922 contained European foul brood." Over thirty per cent in one county with foul brood! I call that going some. Tulare County's ordinance, as published in *GLEANINGS* for April 15, p. 255, is all right as far as it goes, but it does not touch the real source of the disease in that locality. It has a tendency only to check. Stop the importation of bees, queens, and queen-traps from a diseased yard, within 30 feet of the disease, instead of 30 miles, as Sec. 5 reads.

Pasadena, Cal.

## SWARM CONTROL BY SHIFTING BEES INSTEAD OF HIVES.

### The Various Methods for Doing this Compared.

BY J. E. HAND.

The Simmins turnover method of controlling bees, as described in the March 1st number of *GLEANINGS*, is especially interesting, because, when compared with modern methods as practiced in this country, it clearly denotes that the pursuit of apiculture has taken advanced ground during the past decade. The shifting of bees from one hive to another for various purposes by changing the position of the hive entrance is as old as bee-keeping itself; and it is doubtful if any man living to-day can lay claim to priority of invention of the basic principle

of shifting the flight of bees from one hive to another.

While Mr. Simmins was introducing his turnover system in Europe in 1893, an American bee-keeper by the name of Barnett Taylor, of Forestville, Minn., introduced a hive and system that was the exact counterpart of the Simmins hive except the portico. This was in 1892, if I remember correctly, just one year prior to the time that Mr. Simmins says he introduced his system in Europe. During the same year, H. P. Langdon, of New York, came out with a method of shifting bees by means of a tube that connected the entrances of two independent hives. The operation in both these cases consisted of closing the entrance of one hive and compelling the bees to find the entrance to the other, exactly as practiced by Mr. Simmins.

My system precludes the necessity of having two entrances on a side in dangerous proximity, as shown in the illustration on page 132, March 1st *GLEANINGS*. When bees become accustomed to a particular hive and its surroundings, especially to the position of the entrance, any disturbance of the hive in respect to these matters is productive of no little trouble and disturbance to the bees on their return from a nectar-gathering flight. This interval of excitement and disturbance consequent upon the changing of the position of the hive entrance will cause the bees to set up a search that may lead to the discovery of the entrance to their former home, even though it be on the other side of the hive.

The system that is carried out in connection with my bottom-board equipment is as different from the Simmins system as is my method of shifting bees. I have found that the promiscuous intermingling of strange bees at swarming time has a tendency to create discontent among the bees which is almost sure to result in swarming. I wish to go on record as saying most *emphatically* that, if two colonies are to be united, and the working force of both combined in one set of supers, with no swarming, the bees must be united in an empty hive on the stand previously occupied by the parent colonies. The most practical and economical method of accomplishing this is to place one hive upon the other on one side of a double switch-board, the two hives separated by a queen-excluder. At the beginning of the harvest, shift the flying force of both hives over into a new hive, in the center of which is placed a comb of brood and the queen from the top hive. All that is necessary is to throw the switch, and the bees returning from their nectar-gathering flight will enter the new hive through their accustomed entrance without a moment's hesitation. There is no intermingling of strange bees, the swarming instinct is satisfied, swarming is controlled, and our bees are placed in condition to do the best work that bees are capable of performing under the most favorable conditions.

Birmingham, O.

# Heads of Grain from Different Fields

## How Long can Bees be Kept Confined in a Glass or Observatory Hive? How to Supply them with Fresh Bees.

I received a nucleus and demonstration hive several days ago. They arrived Friday, May 12, I believe, for we are on a branch road, and things are slow in reaching us. About 1000 bees were dead, but the others are doing very nicely now, I think. I looked into the hive to-day, and the queen seemed to be laying well, and the bees were quite gentle.

I wish to ask a question as to how to manage the demonstration hive. How long can I keep a frame with the queen in such a hive away from the other bees without causing trouble? My class recitations are 45 minutes long, and I have from two to three in succession. How long could a frame of bees be kept in this without the queen? Should I have some old worn-out queen in the demonstration hive simply to show what she looks like? How could I get her in with the rest for a week, say, without trouble—long enough for my classes to see the various lines of work going on?

I presume we should have an eight-frame hive with glass sides, so as to slide the frames along to the glass, but I am not sure how soon I shall feel justified in asking for the extra appropriation.

I have 150 girls, high-school graduates, mostly from cities like Newark and Jersey City, and a few from the country. Most of them are afraid of any thing that crawls, and I want them to see as much as possible of the work of the bees without throwing the hive into confusion.

Upper Montclair, N. J.

C. H. ROBISON.

[You can keep a frame of bees with a queen in a glass hive for about a week. At the end of that time the bees begin to get uneasy. They ought to be given a flight so they can cleanse themselves. They may then be shut up again and used over. No, we do not think it is necessary to use old worn-out queens. Use the best you have. Keeping them in a glass hive where they can be seen by the pupils will not injure the queens in the least.

A full-sized glass hive is very nice, but it enables the scholars to see only the outside of each outside frame. A single-comb observatory hive is usually much better. By having a regular hive in the yard, in the rear of one of the college or school buildings, you can draw a fresh supply of bees every week. Our suggestion would be this: Get one full-sized colony, eight or ten frame size—the latter preferred. Then, once a week, take a frame of bees and put it in your glass hive. The first time you do this, take the frame of bees, brood, and queen. At the end of the week pick the queen off the comb. After it has been taken from the glass hive put her on to another comb. Put this comb with bees into the glass hive. Queens can stay in a glass hive indefinitely, but the bees must be changed from week to week or given a flight.

The writer has made a number of public demonstrations, and finds no difficulty in getting college students—girls, young women, and young men alike—familiar enough with the bees so they are willing to take a frame of bees in their own hands. But the teacher himself must first take out the frame very carefully, and show them the importance of not pinching any bees when handling the comb. We have frequently passed frames of bees clear around an audience-room.—Ed.]

## The Spider Flower for Honey.

Can you tell me if the spider flower is a good honey-producing plant? We have what is called the spider flower. Some of our friends ordered the seed from some seedhouse, and the bees covered it over morning and night. There is a small drop of honey in the bloom. It grows about 3 ft. high, and springs out. It has from four to eight heads to the stalk. It blooms till frost. After it blooms the bees will not notice buckwheat where this plant is in bloom. Some of my neighbors say it is not good for bees. Would it pay to sow it for the bees? It grows almost anywhere around the place. Stock will not eat it.

New Boston, Texas.

J. K. LARUE.

[You will find the spider flower mentioned in the old editions of the A B C of Bee Culture, and a brief mention of it in the new edition of the same work.

It is indeed a very remarkable honey-plant; but there is not enough of it growing to make much of a showing in the supers. The nearest relative that we have to it to produce honey in any considerable quantity, or enough so that we can taste it in connection with alfalfa, is the Rocky Mountain bee-plant. It looks very much like it, and a good many might confuse the same plant for one and the same thing. The Rocky Mountain bee-plant grows in a higher altitude, while the spider flower grows in a lower altitude and in the Eastern States. But the distribution of it is so scattered that it does not amount to much commercially. It would not pay to sow it for the honey it yields. Aside from the honey and being an ornamental plant, it has no value.—Ed.]

## Long Cold Spring.

To-day I took a drive through the country, saw several bee-keepers, and am able to report the condition as it is here. It has been warmer for the last four days, but we have had a long cold spring—the same conditions here as were reported by the Redlands correspondent in the last issue of GLEANINGS; and as nearly as I can find out, the loss of bees has been 15 per cent.

I came to California seven years ago, and was near Redondo Beach, where I had a few colonies. A year ago I came to San Diego Co. and bought a place with 90 colonies and 300 hives. The bees were run down, so it will take this season to get them in shape. I have also two more yards I am caring for on shares—one of 70 colonies, and the other of 120. All were in the same condition mine were. I shall have a fair crop in all three yards. The stronger are working in the second super.

## A GOOD SHOWING FOR HONEY.

In my trip to-day I saw six bee-keepers, and their yards represent 1500 colonies. The best yard I saw was one of 100 colonies. All but three had three extracting-bodies on, of nine frames each. The owner works on the tiering-up plan. I have tried it with half of my bees ever since I came into this State, with good success.

Our nights are so cold the bees must have plenty of room. I want a ten-frame hive of standard size.

## SWEET CLOVER, AND HOW TO TEACH STOCK TO EAT IT.

In regard to sweet clover, I have sown hundreds of pounds of it, and I never saw a horse nor a cow but would eat it after learning to like it.

I made a test in Michigan with 15 acres. I sowed it with Dutch white, alsike, red, sweet clover, and timothy seed; got a good catch of all; pastured it several years. The second year cows and horses would pick out the sweet clover and leave the other grasses to go to seed. Two families pastured their cows there and claimed the milk and butter better and richer than ever before. I had a small patch last year. I put a little in the feed, but neither cows nor horses would touch it; so I began by very small doses, and soon they learned to eat it readily.

Dr. Cook said, several years ago, "Nothing will eat it. I gave my cow and horse some and they would not touch it." That was no test, for I have found sweet clover is the farmer's best friend; and if he gives it a fair test he will find I am right.

De Luz, Cal., June 26.

DAVID BERTSCH.

## How Bees Ventilate the Hive and Evaporate Honey.

Please tell me how I can learn the different sounds of the bees and what they mean. What do they indicate when they stand about the entrance and fan with their wings, with their heads down against the bottom-board? I have looked at them, but do not find any thing wrong. They are working well, but have spells of doing as above. What causes them to make a roaring sound? They are not robbing nor fighting.

Billings, Mich.

M. L. KENT.

[Usually, when bees stand on the alighting-board and make their wings go rapidly they are fanning at the entrance, so to speak—that is, they are creating a draft of air through the hive to aid in evaporating the honey. Sometimes the interior of the hive gets too hot, and the bees fan at the entrance in this way to cool it.

There are several causes for the bees roaring.



The most common, probably, is that they are then queenless. However, they are likely to roar sometimes if other conditions are not just right; but without further particulars we could not say just what caused the roaring you speak of.—ED.]

### Honey-dew this Season.

Fruit-bloom was immense last spring. I had a good many sections filled from that and hard maple. Clover is all dried up, but we had a five-weeks' flow of honey-dew like the one we had two years ago, which gave me toward 2000 sections and about 50 gallons of extracted. The quality is much better than it was two years ago. The aphides were on the chestnut-trees this year. I am surprised that you do not say any thing about this in your report. It is hardly possible that they were only in this neck of the woods. Basswood lasted only about a week—too dry and hot to secrete nectar.

Trail, O., July 8.

AMOS MILLER.

[There have been several reports lately of honey-dew again this year; but either the aphides are not in as great numbers as they were two years ago or else there is enough honey coming in at the same time from natural sources to keep the bees from bringing in the black rank stuff.—ED.]

### No Eggs, and Hive Honey-bound.

On going through the hive from which our swarm came three weeks ago to-day we find no evidence of brood. We saw the queen, so we know that that is not the trouble. An old bee-man went through the hive for me, and is at a loss to know where the trouble lies. The bees are filling every portion of the frames with honey.

Westerville, O., July 1. LIZZIE J. McCALMONT.

[It is our opinion that your hive is honey-bound. In other words, so large an amount of honey has been coming in within the last few days that the bees have used every available cell, crowding the queen out entirely. We sometimes see this condition; but as a general thing you will find here and there a few scattering eggs and young larvae. After the honey-flow is over, you will probably find that the queen will begin to lay a few eggs, although, after the main flow, she sometimes lets up to such an extent that few or no eggs and very little brood will be found.—ED.]

### Queen Lays Two to Five Eggs in a Cell.

Can you tell me why a queen lays more than one egg in a cell? I have a queen in a four-frame nucleus. She is three or four years old. She is laying from one to a dozen eggs in a cell. The most of the cells have more than one egg in them. I notice that there are from two to five bees hatched in a great many of the cells; but after they are three or four days old, all but one are removed. Do the bees remove all but one, or what does become of them? I have been using the brood to strengthen other colonies as fast as it was capped over. That leaves them weak in bees. Is it on account of the colony being weak in bees, or is she falling on account of her age? She looks strong and healthy.

Spring City, Pa., May 27.

C. I. GRUBB.

[Usually when a queen lays more than one egg in a cell it indicates that she has not enough cell room for laying. However, in the case of the queen you mention it is possible that she is failing, as you say she is three or four years old. If the queen has plenty of room, and if there are bees enough to cover what brood she has, then we would certainly supersede her if we were in your place unless conditions are better.—ED.]

### Removing Bees from a Chimney.

What plan can I take to get bees out of a chimney without tearing it down—also to save bees and honey?

Livingston, N. J.

J. H. TERHUNE.

[In our judgment there is no way by which you can take the bees and honey out of the chimney without destroying the bees or doing some damage to the chimney. If the bees are passing into the chimney through a small opening on one side you can put a bee-escape on the outside, and in the course of a short time have the majority of the bees outside of the chimney. The bees may then be hived; but there will be the brood and the

young bees inside the chimney yet. So, taking it all in all, we would imagine the chimney to be of more value than the bees. If you wish to destroy them, combs and all, build a hot fire in the stove or furnace, using some kerosene to ignite the soot in the chimney. In other words, "burn out" the chimney.—ED.]

### The Capping-melter Advocated.

After a season's work with a capping-melter I have come to the conclusion that it is a contrivance that is indispensable to the producer of extracted honey, and I think the investment will be profitable for the extensive honey-producer, and also for the bee-keeper with only forty or fifty colonies. By using the melter we procure the last particle of honey from our cappings, which, by any other method, is difficult. There are no cappings in the way, or to bother with after the day's extracting is over.

When the cappings are standing around to drain, there is always a possibility that ants will find them.

My experience indicates that the capping-melter will be in general use as soon as the bee-keeping community is convinced that it is a necessity in a modern apiary.

It has been claimed that the honey will be discolored. This is true. The color is slightly affected when the melter has a sieve made of fine copper screen; but by using a coarser screen the trouble is nearly overcome.

Elmendorf, Texas.

A. L. HARTL.

### Boiling with Lye to Remove Propolis; does it Hurt the Bees?

We sometimes boil brood-frames, that have been used, in a strong solution of lye. This done, we give them to the bees when there is still some of the lye upon them mixed with propolis. Is there any danger that the bees may be injured by removing the lye and propolis?

W. H. LITTLEJOHN.

Battle Creek, Mich., June 22.

[Dr. C. C. Miller, of Marengo, Ill., boils his wooden separators that are daubed with propolis in a strong solution of lye and hot water. He has never reported that there was any trouble to the bees from the use of such separators, and we do not see any reason why there should be to brood-frames so treated.—ED.]

### What Becomes of the Old Queen when a Colony Supersedes.

A fellow bee-keeper and myself had an argument as to what becomes of the old queen when a colony supersedes her—whether she goes with the colony until she dies, or the bees kill her, or the young queen.

D. D. S.

[You have put up to us a rather hard proposition. In fact, so far as we know no one can tell definitely whether the young queen destroys her own mother, whether the bees do it, or whether the old queen just dies of old age. As a general thing, it is our opinion that the old queen simply wears out and dies. But in case she does not, apparently the young queen or the bees take a hand in it, for it is very seldom that we find mother and daughter in the hive after the first of September in our Northern States. Just when the old queen disappears in the Southern States we are unable to say.—ED.]

### Another who Prefers the Caucasians.

I am very glad to see you have at last said a good word for the Caucasian bee. With me they have proven better than the Italians. My best colony gave me nearly twice the honey last year that the Italians did, and they are now ahead again this year. I find them to be gentler than the Italians. I use very little smoke and never wear a veil, and seldom get a sting. The ones I have show yellow; otherwise I can hardly tell them from the common Carniolans.

The Caucasian and Carniolan bees did not swarm at all this spring with me; but the Italians had the swarming fever very bad. We had just about honey enough coming in from the middle of March to the 10th of May to keep brood-rearing going at full blast. I had one queen that kept 18 standard L. frames and 8 shallow-super frames full of brood until I cut her down to 10 L. frames with honey-board, yet that colony did not swarm.

Sabinal, Texas.

W. C. EDWARDS.

### A Beginner's Questions on Swarms.

I bought a colony of bees this spring; and after I located the hive the bees took a few days to find out where they were, and then went to work. They gave me no trouble at all. They did not go into the super to any extent, and have not done so yet. Last Monday, June 5, I noticed that some were hanging above the entrance, but thought they would not swarm until the super had been attended to; but when I came home in the evening there was a big cluster grouped about the post and rail of a wire fence in my garden. They had swarmed at 10 o'clock, alighted an hour later, and there stayed. I got out a hive, swept the swarm as best I could into a box, and dumped them at its entrance. Most of the bees went in, but many clustered in the box. Next morning I dumped the box again, but they got under the hive and stayed there until Friday. I then tacked a wire mesh over the entrance, turned the hive up, carried it to a new location (near the old one), swept the bees into a box, and dumped them again. This time I put the hive on a box so they could not go under the hive. They all went in—that is, those that had been under the hive before. For some reason, however, a part swarmed again and clustered on another post of the same kind. These I treated similarly. All appear to be in the hive now. I had much ado to gather these swarms, as the post and its rail were covered with vines. Both posts are about fifty feet from the hives, though there is a fruit-tree within ten feet of the hives, and there are other posts nearer than the one they arbitrarily selected. Luckily, the bees did not choose any spot in my neighbor's yard, where there are plenty of fruit-trees. I hope the queen is in the new hive. I notice that quite a number of bees are flying about those two posts.

Now let me put an inquiry or two:

1. When hiving a swarm, is it better to put the super on or leave it off? In other words, if it is on is there any danger of the queen's going into the section boxes? Would the workers build there as soon as on the brood-frames? Though I do not see it stated in so many words, I understand that, once on the brood-frames, the queen does not go into the super. Why?

2. Is it undesirable to lift the cover off the super at frequent intervals—say once a day? I would do so only to inspect, and ascertain whether the bees were at work. My supers have only foundation starters. Yesterday the hived swarm was thickly in the super; to-day, hardly at all.

3. Is it better to have the brood-frames with full sheets of foundation, or are the starters sufficient?

4. How long does it take an average swarm, under ordinary conditions, to build up brood-combs in a hive like mine—Danzenbaker, with foundation starters?

5. If the bees flying about those two posts do so because of the smell of the swarms that were there, is it your experience that putting coal oil there will drive them away? They do not go away for any smoke. They come right back.

6. What weight of foundation should I order for the section boxes—thin or extra thin? What do you regularly put into your Danzenbaker supers?

7. Is it best to put a frame or two of brood in a new hive when hiving a swarm? Is it necessary? Berkeley, Cal. THEODORE GRAY.

[1. At times it is impossible to explain why bees swarm. They just swarm, and that is all. A good many bee-keepers have called swarming the bane of modern bee-keeping, and we do not know but that this is true. There is no question that it is harder to keep down swarming in the production of comb honey than in extracted-honey production; but much can be done toward providing a very large entrance, shading the hive, and, during the hottest part of the season, raising the brood-chamber from the bottom-board by half-inch blocks at each corner. This latter is not always necessary; but at times it does a great deal of good. We have an idea that, if you could shade this hive and provide extra ventilation in the manner stated, this swarming will be delayed or stopped altogether, as the bees certainly had enough room. If there was any amount of capped honey in the brood combs, however, it is likely that the bees would swarm any way. If the bees get into the habit of storing honey in the brood-comb they are very backward about entering the supers, and they want to swarm early, even though there is plenty of extra room in the super. The only remedy in this case is to see that the queen keeps the brood-comb

well filled with brood up to the time that the honey-flow begins, so that there is little or no room at all for the storage of honey in the brood-comb. When hiving a swarm, if it is a good large one it is a good plan to put on the super at once, for the bees are excited, and they need lots of room; and if their quarters are cramped at all they will swarm out again immediately or within a day or two. A good queen will rarely lay eggs in sections, for the reason that it is against the nature of the queen to lay eggs in small combs that are separated from the rest of the comb. The queen knows by instinct that it would be difficult for the bees to keep those small separated patches of brood warm. Whenever queens do lay in sections, provided there is room enough in the brood-combs below, we advise superseding.

2. We do not know that it would be undesirable to lift frequently the cover of the super, although if the nights are cool you would constantly keep the propolis sealing broken so that there would be a draft through the super, causing the bees to go down to the brood-comb every night. If your nights are cool it would be all right to have some packing material at the top to keep out the draft. Then if you take off the cover frequently this objection would not hold.

3. Full sheets of foundation are usually cheaper in the end; for with only starters too much drone comb is likely to be built, and the rearing of a lot of useless drones would be the result.

4. We do not know that we can answer definitely as to the time that an average swarm takes to build up brood comb from foundation, for this would depend on the honey-flow, on the weather, and on the bees themselves. Under ideal conditions a good strong swarm ought to build comb from foundation in two or three days.

5. The bees kept flying about those two posts where the swarms were clustered because of the scent of the swarm and of the queen. We do not know that we have ever tried kerosene to destroy the scent in this way, but we think it would work. Carbolic acid would probably be better still.

6. We would recommend that you get the extra thin super foundation, as it leaves less midrib in the comb honey. The thicker foundation is often objected to.

7. Yes, it is a good plan to put a little brood in a new hive in which a swarm is placed, in order to keep the bees contented. If they are a little inclined to leave, the brood will make them contented, as they will not ordinarily desert it.—ED.]

### Don't Hold the Smoker Too Close to the Bees.

On p. 303, May 15, are some pictures showing how to use a smoker. No one working for us would be permitted to do it that way. The hot smoke blown directly on the bees is cruel and unnecessary. The nozzle of the smoker should never be within a foot of the frames. The cool smoke will subdue the most vicious just as easily. Having worked with bees ever since 1849—except during the war—we feel competent to give the above advice. We have four apiaries, and, of course, have to do things systematically and rapidly during the hurry season. G. F. MERRIAM.

### Labor Troubles and the Honey-bee.

Dear little honey-bee, winging your way  
To fields that are blossoming at dawn of day—  
Come, let me question you—I hope to learn  
Lessons in industry man should not spurn.

Labor men! railroad men! money kings! come  
And bid a wee—listen to what should be done.  
Dear little honey-bee, toiling all day,  
Who pays your wages? when do you play?

When you stopped working, just yesterday noon,  
Was it more wages or was it more room?  
Ah, little honey-bee! self you forget;  
The good of the hive is your benefit.

A sip would suffice you of all that you store;  
And of multiplied millions man uses no more.  
The wealth you have stored, hard labor has won;  
Oh! would that be true of what man has done?

Who uses your treasure? you do not know;  
Of gold man is saying, what more can he show?  
Then, conning the lesson, to learn let us try  
That giving is living—in self we must die.

Kibbie, Mich.

EMILY H. JACKSON.



# Our Homes

A. I. ROOT

Happy is the man that findeth wisdom, and the man that getteth understanding; for the merchandise of it is better than the merchandise of silver, and the gain thereof than fine gold. She is more precious than rubies; and all the things thou canst desire are not to be compared unto her.—PROV. 13, 14, 15.

Some of our older readers will doubtless remember about my finding the Grand Rapids lettuce seed and giving it a name about 25 years ago. I attended a bee-keepers' convention—I think it was at East Saginaw, Mich., and I was then full of my hobby, high-pressure gardening, and I gave at that convention a little talk on growing stuff. I had a good deal to say about lettuce, especially lettuce grown in green-houses. Somebody suggested that, if I wanted to know what was going on in the world in the way of *growing lettuce under glass*, I should visit Eugene Davis, in the suburbs of Grand Rapids. I accordingly changed my route in going home so as to go through and stop off at Grand Rapids. In changing cars I got on to a train where there were but very few passengers. In fact, I was almost alone in the car. Just as we started off, however, one of the bee-keepers, whom I had become fairly well acquainted with, came into the car. Of course, I felt glad to know that I was not going to be entirely a stranger in a strange land. The new comer was George E. Hilton. I rose up, extended my hand, and told him how glad I was to meet somebody I knew; and when he informed me that he was to get off soon I apologized for coming immediately to what I had in mind. I said, "Friend Hilton, you are, I believe, a professing Christian."

I shall always remember the pleasant smile that came over his face as he replied something as follows:

"Mr. Root, the very moment my eyes fell on you as I entered this car I felt that I should be called on to answer that question. And now I want to tell you that I am *glad* you have spoken those words to me; yet it is true that I am not and never have been a member of any church." And then he went on to tell me about the little church near their home, and the earnest young minister who was becoming discouraged, he feared, because of a lack of support and encouragement from the business men of their little town. Before it was time for him to get off he yielded to my earnest pleading, and gave me his hand and his promise that he would go at once to the pastor of the little church and tell him that he had promised *me* to unite with the church—both himself and his wife, for he said he *knew* she would be glad to unite with him in so doing. In a few days, after I arrived home, he wrote me that they *had* united with the church, but before doing so he had persuaded his brother-in-law and wife also to unite with the church. A week

or two later he informed me that he had been elected superintendent of their Sunday-school; later on that he, with the pastor's aid, had increased the membership of the church to quite a respectable number; and so it went on and on.\* Dear friends, you who have had no experience in such matters can hardly understand the thrills that went through my soul when I was told of the *outcome* of my talk with friend Hilton during that short ride on the cars. Suppose I had yielded to the temptation to think that such matters would be out of place in traveling on a railway, or that folks would think me eccentric or fanatical, for I have just such temptations (as you have), and I am afraid I oftentimes yield to them.

What brings all this to mind just now is the sad news that comes to me this morning, July 14, that George E. Hilton is no more. He has gone to his reward, and has, no doubt, heard the Master say, "Well done, thou good and faithful servant; thou hast been faithful over a few things, I will make thee ruler over many things." The above favorite text of mine proved true in Mr. Hilton's life in this busy world. When he became superintendent of that Sunday-school, and worked so faithfully in building up that church, he won all of the Christian sentiment of the little town where he lived (it was a good deal in the backwoods of Michigan 25 years ago), and he gained likewise the esteem and respect of his fellow-men outside of the church. Who is there, friends, no matter what his belief, that would not reverence and respect the man who builds up the kingdom of God in his vicinity? Friend Hilton was soon chosen to important offices in his own town,† county, and State; and not long after his sudden start for righteousness he was sent as a Representative to Congress.‡ Ernest tells me that Mr. Hilton was one of the very first to start a rate of only two cents a mile on the railroads of Michigan; and after that State made that reduction, other States soon followed. So we can consider friend Hilton as one of the pioneer movers that brought about lower rates of travel. He has also been largely instrumental in getting better foul-brood laws, even though the bee-keepers of Michigan have recently been partly defeated in that work. In the language of scripture, "His works do follow him."

Friend Hilton visited Medina several times. I remember vividly his making a

\* It would seem that Friend Hilton's start in that little Michigan town was like the leaven which our Savior speaks of in his parable: "The kingdom of heaven is like unto leaven which a woman took and hid in three measures of meal till the whole was leavened."

† When a man's ways please the Lord, he maketh even his enemies to be at peace with him.—PROV. 16:7.

‡ He was, if I am correct, for many years postmaster.

stirring address to our large Sunday-school; and among other things he told of that incident of meeting your humble servant in the car on that eventful day. Please do not think when I refer to these "happy surprises" during my busy life that I wish to boast of what I have done. It was not *I*. It was the *Lord Jesus Christ* that took me, a poor stumbling and blundering sinner, and led me and pointed out the way for the work he has had for me to do. If you will put your hand in his, and say, "Here, Lord, am I, send me," he will use you in a like manner to bless and help humanity. In going back to a copy of GLEANINGS printed in December, 1887, I am reminded of the "baptism" I had received just an hour or two before I plead so earnestly with friend Hilton. Let me make an extract from Our Homes in that journal, page 951:

I was ready to start home; but for certain reasons I wished to purchase a ticket at first only to a neighboring city, and I asked the agent how much it was. He said \$3.35. I gave him four paper dollars. The train was ready to start, and he hurriedly handed me a silver dollar, half a dollar, a dime, and a nickel. In my haste I came pretty near not counting it; but when I got the silver dollar in my fingers, and held it up, it occurred to me that I ought not to have a whole dollar back in change. In other words, he had made a blunder. Now, I am ashamed to say it; but I guess I had better acknowledge that self suggested putting all the change in my pocket, without telling him. I believe I have boasted several times that this "almighty dollar" never tempted me from the path of duty; but there I was, actually coveting that bright round silver dollar that I knew was not my own. I did not hold it in my fingers, I presume, a whole second, but in that second, self (or Satan) whispered, "You must have misunderstood him. He probably said \$2.35." Then came the thought, "Why did he not give me back one of the paper dollars I gave him?" But self put in again, "There is not time to bother with it now, anyhow; besides, it is *his* business—not yours. You gave him the money, and he gave you back what you ought to have." Self seemed to get a little bolder here, and added, "Your expenses on this long trip will be larger, doubtless, rather than less than you had calculated; better hurry up, or you will lose the train." I can not tell even now, dear friends, why such thoughts should have come into my mind. It seems, as I think of it, that it was a remnant of that old life before I belonged to Christ Jesus. Then I used to have such temptations, and I used to yield to them, too, thinking, poor silly fellow! that I was adding to my stock of this world's goods. Why, it made me fairly tremble as I reflected of a professor of religion, and one who even presumes to point out the way for others, listening to such suggestions as the above. I do not know how long it took for me to recoil with my whole nature, and bid these evil thoughts be down and away, as I would speak to some ill-mannered cur that, with muddy feet, might try to spring up and soil my clothes. I said, mentally, "Get thee behind me, Satan; do you suppose I am so silly as to think I could be happy with a dollar that is really not my own—a dollar for which I have rendered no equivalent? For shame!"

I believe it was Moody who once said that no man could be a Christian with a single dollar in his pocket that belonged to somebody else; and I believe we should have better Christians if there were more who felt convinced of this. If this be so, you had better miss a hundred trains; nay, you had better lose even your life, than to go off coolly and deliberately with only a single dollar in your pocket that is not justly your own. "What shall it profit a man if he gain the whole world and lose his own soul?"

"My friend, I gave you only four dollars," said I. He looked at me, somewhat embarrassed; and as I showed him the change which he had given me back, he took the dollar and colored a little to think I had caught him, a ticket-agent, in such a

blunder. I thought if he could forgive me, I could forgive him; and I took great pleasure in remarking to him that I did not want a dollar belonging to anybody else; and with a good-natured smile I suggested that "mistakes will happen," etc. He caught my eye, and his face brightened. The happy look that shone forth from my face seemed to have touched his spirit just right; and who knows but that the glimpse of sunlight went along with him as well as along with me? As I thought it over, it occurred to me that possibly God was trying me as he tried Abraham of old. Is it not possible that he is waiting and watching for men that he can trust? Who knows but that he has been saying, "I have a great deal of work for Mr. Root to do for me, and I want to be sure that he can resist temptation?" You know he said to Abraham, "For now I know that thou fearest God." This trial, however, was but a preface to another.

It would seem that the dear Savior thought that the above test of my integrity was hardly sufficient, for I had another one on that same day. Read the following, a little further along after the above extract:

A few minutes more, and I was almost startled when the agent of one of the great union ticket-offices handed me *two* silver dollars more than I ought to have. I felt glad in my heart, however, to find there was not even the faintest trace of a desire to keep them. If Satan made just a little impression the other time, he didn't a bit here; a ad with it came the feeling, "This money *all* belongs to the Master, and not myself." So long as he supplies me with all I want and all I need, why should I covet any thing? Oh, the unsearchable riches of those who have their whole trust in the resources of Him who is Lord of all!

It was just after these two tests that I met Mr. Hilton, as mentioned above. And, by the way, let me call special attention to that statement by D. L. Moody, that "no man can be a Christian who is conscious of having a single dollar in his pocket that belongs to somebody else." Remember what David said: "Create in me a clean heart, O Lord, and renew a right spirit within me." And then he adds, a little further on, "*Then* shall I be able to teach transgressors thy way, and sinners shall be converted unto thee."

Neither I myself nor anybody else in this whole wide world can lead our friends into the unsearchable riches of a working Christian life until he has received that baptism of the Holy Spirit that comes from being honest, just, and fair, and cherishing love toward all our fellow-men. I do not know whose eyes are resting on these pages and taking in the words that I write; but remember, dear sister and brother, that, just as sure as you yield to the temptation to grasp and hold fast to the things of this world, beyond what is fairly and justly your due, just so far will you cut yourself off from the treasures laid up in heaven.

May the Lord be praised that such a man as our friend Hilton was permitted to live and bless, not only our circle of bee-keepers, but the whole United States. And now, dear friends, when the time comes for you to go, will the world be able to say consistently about *you* what I have been saying about our dear departed friend?

After the above was handed to the printers we received a kind letter from Bro. York, who paid him a brief visit a few hours before his death. From that letter I extract the following:



As I stood by the side of the bed he said: "Oh! I have to die," in a faltering voice, and tears came to his eyes. I said: "Well, Bro. Hilton, we shall all have to go some time, and it probably won't be very long before many of your bee-keeping friends will be with you on the other shore." He said, "But I am not afraid to die. I would go to-night if necessary."

And so we talked together of the end that was so near to him, and of the future home. When we said a final good-by, of course we all felt it would be the last time we would meet on earth.

Mr. Hilton was a good man. He spoke tenderly of his wife and also his children. It was hard for him to leave them, for his life and hopes were bound up so much in his family. He spoke of the son, who was in the government employ in the far West, and of another son who had just graduated from high school, I believe. It seemed too bad that he had to be taken away from his family that he loved so much. But it must be all right, although we can not *understand why*. He was ready to go or to stay, whichever the call should be.

I thought perhaps you might like a little of the foregoing, as it was a personal experience that I had with him. He seemed appreciative of my meeting him at the boat when he arrived, also spending some time with him at the hospital, and then seeing him off the evening he left on his last journey to his home in Fremont. As the boat moved out from the shore it seemed just as if Mr. Hilton was "crossing the river" to that far-away city whence none ever return. There were profound impressions that came upon me as I thought of it in that way.

Money and every thing earthly all seem of very little importance when one comes to the end of life. Only a clean life and the resultant character avail when the time comes to answer God's call to come up higher.

Chicago, July 20.

GEO. W. YORK.

"BY THEIR FRUITS YE SHALL KNOW THEM."

I suppose that most of our readers know more or less of the wonderful work done in our great cities by the evangelist who is better known as Billy Sunday. I confess I do not like to hear him called "Billy." It seems to me that "the Rev. Mr. Sunday" would sound very much better. And in the same line there has been considerable criticism in regard to his slang phrases when talking. But I have said, first and last, let him go on so long as his ministry, such as it is, is not only bearing fruit but good fruit. Quite a few ministers have criticised his methods. Some have said they would not want to invite him to their town; but at a recent Sunday-school conference a minister arose and remarked that he worked with Billy Sunday in a certain city two years ago; and so far as his converts not "holding out" was concerned he thought they had held out remarkably well, for many of them were going into other towns and neighborhoods, preaching the gospel in their own particular way. I suppose he meant, of course, it was laymen's preaching.

Here is a clipping from the *Plain Dealer*, giving some of the facts in regard to the recent work in Toledo; and God knows, if people generally do not, that Toledo, with its hundreds of saloons, has been for a long time a hotbed of wickedness and crime.

Evangelist Billy Sunday received \$15,423.58 to-day from the citizens of Toledo as a reward for his six weeks' efforts to drive the devil out of Toledo.

This breaks all previous records established by Mr. Sunday, the largest amount he had ever received previous to his Toledo engagement being at Newcastle, Pa., where he received \$13,200. A feature of the Toledo collection is that approximately \$10,000 of the amount was given by people of ordinary

means. The highest contribution was \$1000 by Lamson Brothers. The next three highest were \$500 gifts from the First National Bank, T. W. Warner, and \$250 from Tiedtke Brothers.

The number of conversions reached approximately 7300, which also breaks all previous records. Sunday was so pleased with his Toledo offering, that, instead of closing to-night, he decided to preach one more sermon to-morrow.

Just think of it, friends—7300 converts! I wondered first if it was not a mistake of the printer. Now, another great revival evangelist, Rev. Mr. Bederwood, has been holding meetings recently in Akron, a pretty fair-sized city only twenty miles east of Medina. The result or outcome has attracted so much attention that I had one of my happy surprises when I found the following in a recent number of the *Sunday-school Times*:

#### WHY THE TOBACCO WENT.

The *Gospel Messenger*, of recent date, recorded this incident: At a recent evangelistic meeting in Akron, Ohio, a large package of tobacco was thrown on the platform just before the closing prayer was to be offered, and a voice in the large audience said, "I can't pray with that in my pocket." Not a word had been said about tobacco, but this was the signal to others, and before the meeting closed the platform had a goodly collection of tobacco, cigarettes, pipes, etc., willingly discarded by the owners. —E. E. Lowry, M. D., *New Madison, Ohio*.

There is a big moral to the above. Although not a word was said about tobacco, this new-born child coming into the kingdom of God recognized, without being told by anybody, that that package of tobacco on his person was a stumbling-block, and that it was inconsistent with his leading in prayer; and as an indorsement of his decision others followed. No wonder that the audience felt that that was *God's work* when more tobacco and cigarettes and pipes were contributed so as to make a "goodly collection." When an old friend of mine was once considering the matter of accepting the Lord Jesus Christ for his Savior and friend he almost startled me by saying, "Mr. Root, if I start out to be a Christian I have got to give up my tobacco." I replied, "Who said so, Fred?" He answered promptly, "I said so. A church-member has no business with tobacco." Now, I had not said a word to him in regard to tobacco and other filthy habits. It was *God's Holy Spirit* that took up its cleansing work with the acknowledged sinner in all of these cases. When the work of any revival results in conversions like these we may well stand back in awe, and recognize it in the hand of the Almighty. "By their fruits ye shall know them."

Considerable criticism has also come up in regard to the large amounts of money Billy Sunday has received. But my reply would be to this, that it has all been a voluntary and freewill contribution; and if Mr. Sunday uses it to help the helpless, instead of enriching himself, we can rejoice again. From the fact that he has refused tremendous salaries to work in some other way than evangelistic preaching, I am inclined to think he *will* make a good use of all the money tendered him.

# HIGH-PRESSURE GARDENING

A. I. Root

"FROM PRODUCER TO CONSUMER;" A SHORT CUT.

Our good friend Philo made a great hit in getting everybody to grow chickens in the back yard, *because* it includes one of the shortest cuts possible from producer to consumer. Now, here is something else you can do in your back yard besides growing fresh eggs. Have a little garden. If you have not room to have a garden larger than your dining-room, have that kind of garden, and put a good big load of manure on it. Dig it up deep and work it into the soil. Before you put on the manure, however, get rid of all sticks, stones, and rubbish. Have the ground fine and loose. Now dig in the manure and work it down deep. Dig up the ground two feet deep if you can stand it. Then put in your seed and let the children help and become interested. For an illustration that comes home to us just now, new potatoes are worth 70 cts. a peck at the groceries, or \$2.80 a bushel, when they can be raised for 25 cts. a bushel. When I was up in Michigan last, I told you the farmers were offered only 25 cts. a bushel. You may say that all soils are not suitable for growing potatoes. Well, I will tell you how to make them suitable. I knew it already, but I have just been reminded of it by visiting a neighbor's little garden. He is a man of about my age, but he gets enjoyment and profit out of his little garden. Well, last fall, after gardening was over, and just before freezing, he had the little garden spaded up in tall ridges. I think the tops of the ridges were about three feet apart, and the dirt was thrown up so it was almost three feet high from the bottom of the furrow to the top of the ridge. He evidently threw it up as high as it would stand, and this not only enabled the frost to pulverize every part of it, but these ridges were dry in the spring long before the level ground, and he put in potatoes, radishes, peas, and a great lot of hardy stuff in the latter part of March or fore part of April. As a consequence he had early potatoes of his own growing at exactly a time when they were 70 cts. a peck in the market, and there is plenty of time to grow more stuff, or a second crop on the same ground. It paid him big for all his time and trouble.

You may say that potatoes are not hardy. Down in our Florida home one of our neighbors planted a great lot of choice early potatoes. He is a bee-keeper from York State, and brought the seed from there. The folks who lived around there said it was too early, and that very likely the potatoes would get nipped by the frost. Yes, they did get nipped, and he and his wife were feeling blue to think they had lost all their potatoes; but, to their happy surprise, some favorable weather came right away afterward, and new shoots put up just below where the frost had done damage, and in just a few days nobody would know that

the frost had ever touched them. They had all the table potatoes they could use, and sold some to the neighbors and to us; and I think they were about the nicest potatoes I ever tasted.

Now in regard to our little back-yard garden. If a frost comes, you can cover this up without much trouble, and it will be a great help to you to have two or three hot-bed sashes in which to sprout a few potatoes and grow vegetable-plants before you put them out in the open ground. You will have the very best of early vegetables. They will not be stale when you get them, and no middleman will have any thing to do with the profit. The *Rural New-Yorker* tells us that a farmer gets only about 35 or 40 cents of the dollar that his crops sell for. With this little back-yard garden he will have 100 cents of the dollar for every thing grown, and have it fresh. By the way, do you know that green peas, green corn, and many other things are very much better if they are cooked just when they are picked? We have found this so true that Mrs. Root and I pick our green peas in the evening, when it is cool and shady, and cook them as soon as shelled, over a little 75-cent gasoline-stove. You know we do not have any suppers, so the cooked peas are just set away ready for breakfast. They can be quickly warmed up for breakfast, or kept over night in the fireless cooker, and then they will be already warm. Now, if you do not have such a little garden when this reaches you, you can start it right now, and grow a great lot of stuff (including early potatoes) before frost comes again.

## POTATOES SHIPPED FROM FLORIDA TO ALASKA.

We clip the following from the Jacksonville, Fla., *Times-Union*:

The Hastings potato-growers closed the most prosperous year they have known, Wednesday of last week. About 1200 cars were shipped from the entire section. Something of a sensation was created in the produce world by an order from a Seattle firm for three carloads of Hastings potatoes which they wanted to fill an order from Alaska—one extremity of the United States supplying another with this delicacy.

I am very glad to know that raising Irish potatoes for the early northern markets is getting to be a great industry in Florida. Growing potatoes in Florida to ship by the carload north is certainly a praiseworthy undertaking, providing, of course, the railroad companies will do their best to help their fellow-men by making the lowest possible rates of transportation. The great reason why we have peace and plenty, at least to a considerable extent, in every spot of our glorious country, is because of the tremendous strides that are being made in the way of transportation. When we get to sending potatoes by the Wright flying machines from Florida to Alaska I will give a write-up of the event—that is, if God permits me to live long enough.



PROFESSOR WILEY, UNITED STATES CHEMIST  
—SHALL HE BE DISMISSED?

The following is taken from the Cleveland *Plain Dealer*, headings and all:

WILEY WOULD BAR TOBACCO IN PUBLIC; PURE-FOOD EXPERT PREDICTS TWELVE YEARS WILL END PRESENT PRACTICE; THINKS DRINK - LADEN BREATH WILL ALSO BECOME OBSOLETE.

Dr. Harvey W. Wiley, the government pure-food and drug expert, who has spent the better part of his sixty years trying to induce people to eat clean food and use pure drugs, will spend a goodly portion of his remaining years in cleaning up the atmosphere of the United States.

The learned sachem of the Bureau of Chemistry to-day came out flat-footed against the practice of filling the air with tobacco smoke. He has joined the non-smokers of America, an organization whose object is to swat the smoker who insists upon blowing his smoke about the air promiscuously.\*

He predicts that the next generation will look upon the man who smokes in public as a monster. A man may smoke in private to his heart's content, providing he blows his smoke up his own chimney; but smoking in public will be a thing of the past, according to the chemist, when his organization gets well under way.

"I predict that, within twelve years, smoking and tobacco chewing in public will have become obsolete," said Dr. Wiley to-day. "A man has a perfect right to drink, chew, or dip snuff in his private sanatorium, but he has not the shadow of a right to inflict unwholesome smoke and his vile breath on the community at large.

"There should be a strictly enforced law prohibiting smoking and chewing in public places or on the cars where other persons are obliged to be."

Dr. Wiley is not opposed to the use of tobacco in itself. He is in favor of allowing people to smoke, or even take a tablespoonful of mellow rye, providing no one is near to be offended.

As Prof. Wiley, right after this came out in the papers, was tentatively asked to send in his resignation, we are inclined to think his declaration in regard to tobacco has something to do with it. As we go to press, however, we gather that President Taft has reconsidered the matter, and that Wiley is going to stay with us. The Chicago *Inter Ocean* has a cartoon representing Prof. Wiley personating Don Quixote. The windmill that he is going to charge with his lance is the tobacco and cigarette business; and Lucy Page Gaston (that consecrated woman who has done more to banish cigarettes than perhaps any other person) is represented as cheering him on. May God help his people who love decency, good health, and righteousness, to teach the enemy that he has made a blunder; and that when the truth comes out we shall be able to say, "They that be for us are *more* than those that be against us."

THE WALL-PAPER "TRUST" OR COMBINATION, ETC.

On page 411, July 1, I spoke about selling articles on the five and ten cent counters at a very small profit—that is, making small margins on staple goods for household use. Ever since the five and ten cent stores were started there has been complaint about their "cutting prices" so that other people could not make the usual profit. Now, our good old Uncle Samuel has made a decision that any dealer shall be permitted to sell goods

\* Wiley is also guilty, so we are told, of telling the world that "Duffy's malt whisky" is not a *medicine* nor even *good* (?) whisky.

(that he owns) at whatever price he chooses. This law is what is called the Sherman act; and we are just now informed that a trust has been formed by the manufacturers of wall paper so the five and ten cent stores can no longer handle wall paper at cut prices. As there has been quite a little difficulty in enforcing this Sherman act, there is talk about not only a \$5000 fine but a one-year imprisonment for the transgressors. Now, I hope I shall not be treading on the toes of any of my good friends when I take the ground that, in this "land of the free and the home of the brave," every person should be permitted to buy the things needed *wherever* he pleases; and not only that, he should also be permitted to *sell* whatever he grows, manufactures, or honestly purchases, without hindrance from any trust or combination, on the principle that friendly "competition is the life of trade." May God be praised for such a law as the Sherman act; and may all good people unite in upholding its just and righteous measures.

EIGHTY YEARS OLD, AND BEGINS TO FEEL  
YOUNG AGAIN.

Dear Bro. Root:—The 18th of last March I commenced my 80th year. I was 79. I have done lots of work this spring, spading up the garden and other things, and feel better able to do it than for many years. I have been following Terry's teaching, and am beginning to feel young again. Please renew my subscription to GLEANINGS, and send me a copy of Terry's book. I sent the copy I got of your company to my sister, and can't be without one.

Denver, Col.

J. L. PEABODY.

I want to explain to our readers that, about twenty years ago, I made friend Peabody a brief visit. His health was so poor at that time that he could not stand being indoors, especially where there was a crowd of people. When he and I went in to talk to the inmates of one of the Denver prisons he remained only a few moments, and I found him, when I got through, out in the open air. I judge that he has been keeping out in the open air, and he tells us that he is following Terry. Spading up a garden at the age of eighty is pretty good for one who has been an invalid a great part of his life.

MRS. LIZZIE E. COTTON AND HER "CONTROL-  
LABLE HIVE."

Those of our readers who were taking GLEANINGS 30 years ago (and I presume there are quite a number of them) will remember what a time we had in showing the truth regarding Mrs. Cotton and her hive. Letters from her victims came in from all sides, and other periodicals helped to show up the truth. I think that, in years past, it has cropped out, or started to crop out two or three times; but we supposed that the present stage of bee culture had made that same advertising unprofitable.

One of our subscribers, Mr. O. B. Griffin, of Caribou, Me., sends us the following:

Every family that has a spot of land can keep honey-bees and raise honey for family use or for market. One hundred dollars income from one

controllable hive of bees in one year. Lots of honey and lots of money keeping bees in controllable hives. No stings. No loss in winter or swarming time. Something new in bee management. For particulars write C. B. CORTON, Gorham, Maine.

Here is what he says about it:

*Mr. Root:*—The *Maine Farmer*, a good clean agricultural paper published in this State, is running the enclosed advertisement. I have protested, claiming the advertisement was misleading, and

that to secure enough honey from one normal colony in one season (in this State) under normal conditions, to sell for \$100, would be impossible, if sold at market prices. I would greatly appreciate the favor if you would write me your opinion regarding this.

Caribou, Maine.

O. B. GRIFFIN.

Come to think of it, "\$100 from a hive of bees" sounds a little familiar. In this case, however, it is *bees* and not chickens.

## Health Notes

### TUBERCULOSIS AND SOME OTHER THINGS.

In our neighboring city of Cleveland there has been held recently a convention of doctors, something like 500 being present. This number included not only the greatest experts of Ohio, but perhaps of the United States. There were two points brought out that greatly interested me. T. B. Terry, in his book, as you may know, makes the charge, and makes it pretty vehemently, that many of our family physicians are getting a bonus for sending patients to some specialist to have an operation performed. Of course, this is a branch of modern graft. For instance, some doctor who is more interested in a big fat fee than in curing his patients hunts up somebody who has a good bank account, and then when opportunity presents itself he persuades this man that an operation will have to be performed to save his life. Some of you know what an operation costs—two or three hundred dollars, and sometimes more, especially if the patient happens to be a millionaire and will stand "all the traffic will bear," as the railroad companies used to put it. Well, this doctor gets a percentage of the fee for hunting up patients. Now, while there is *some* of this kind of work going on, my impression is there is not much of it, especially among good Christian doctors who have stood the test for years. In regard to this matter, one of our prominent physicians in his address gave the following, clipped from the *Cleveland Plain Dealer*:

"I hold that the habit among certain physicians, of splitting fees on cases," says Dr. Skeel, "is nothing more nor less than bribery; and such a system ought to be wiped out forever. I refer to the custom of a regular doctor referring a case to a specialist, in consideration for which the regular physician gets a stipulated sum. The sale of patients to the highest bidder can never be condoned by a profession which stands first of all for service, and last for remuneration."

Besides the above, here is something in regard to tuberculosis:

A paper of interest to the laity as well as to the professional men was read by Dr. Charles S. Rockhill, of Cincinnati, on "The Prevention of Tuberculosis."

"Kissing spreads tuberculosis to a great extent," Dr. Rockhill said. "Look out for the servant girls in your homes that they do not become chummy with your children and caress them. Perhaps you do not know that, next to the laboring man, the servant girl represents the largest percentage of tuberculosis in America."

"There are more deaths from tuberculosis than all the contagious and infectious diseases put together. There are 100,000 cases of consumption in

Cincinnati alone. That gives some idea of the extent to which this dread disease has spread in Ohio.

"I advocate the passage of a law that will prohibit the sale of liquor to tubercular patients. Many a tuberculosis germ is found on beer-glasses in the public saloons."

I am especially glad to hear that a council of doctors condemns the saloon; and, by the way, in all of our temperance talks I do not remember to have seen before a caution in regard to unsanitary beer-glasses. Now, if the doctors would only go a little further, and ask for a law that prohibits the sale of liquor to *anybody*, sick or well, we should think the millennium was near at hand.

### CIGARETTES, CIGARS, ETC., AND THE PART THEY HAVE PLAYED IN RECENT CONFLAGRATIONS.

Our good friend A. T. Cook, of Hyde Park, N. Y., sends us the following clipping from the *New York World*, written, as you will see, by himself:

#### FIRE-SAFETY SUGGESTIONS; DOES IT PAY TO SMOKE?

With the tragic loss of 144 fair young lives in the recent factory fire, the Albany Capitol fire, the steamer Slocum fire a few years ago, where more than one thousand innocents met a most terrible death, and thousands more of losses, both great and small, all caused by smokers, one may well pause and consider if it really pays to smoke.

Besides fire losses and tragic deaths, the smoker greatly injures his own health, spends a vast sum of money that he could put to better use, and make himself obnoxious, and a nuisance to many of his best friends.

Hyde Park, N. Y., April 3.

A. T. COOK.

There may be some sort of excuse for smoking pipes and cigars. In fact, a good many Christian men and prominent members of society are addicted to the habit; but there is certainly no excuse for cigarettes. Even the manufacturers themselves have never made any claim for them except that they enable the makers of them to make money. The man who smokes cigars usually has sense enough to be careful where he throws down his burning stubs. But the user of cigarettes sooner or later becomes too stupid either to know or care whether the act results in the death of innocent people (often women and children) or not. We are fighting down the liquor-traffic, and are we not about ready to demand, certainly all over the United States, that this traffic, especially where it permits the deadly things to get into the hands of children, be speedily brought to an end?